
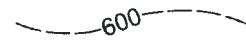











CITY OF DULUTH

DEPARTMENT OF PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

PLAN SYMBOLS

-  PROPERTY LINES
-  EXISTING CONTOUR LINES
-  TRAIL CONSTRUCTION TYPE
"A" CENTER LINE OF
PROPOSED 2-WAY TRAIL
CORRIDOR
-  TRAIL CONSTRUCTION TYPE
"A" CENTER LINE OF
PROPOSED 1-WAY TRAIL
CORRIDOR
-  TRAIL CONSTRUCTION TYPE "B"
-  TRAIL CONSTRUCTION TYPE "C"
-  FORMED BERMED TURNS
ALONG EDGES OF TRAIL
-  BRIDGE, BOARDWALK, OR FORD
-  TRAIL MARKER OR OTHER SIGN
LOCATION
-  TRAIL MAP SIGN LOCATION
-  KIOSK LOCATION

CONSTRUCTION PLANS FOR: CITY OF DULUTH TRAVERSE TRAIL - PHASE 1 MISSION CREEK

CITY PROJECT NO. 1224



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LOCAL SPONSORING CLUB
www.COGGS.com

LENGTH SUMMARY:

PHASE 1 (BASE BID):	31,424 LF (±6.0 MILES)
PHASE 2 (NIC):	14,157 LF (±2.7 MILES)
FUTURE PHASES (NIC):	68,926 LF (±13.0 MILES)
GROSS LENGTH:	114,507 LF (±21.7 MILES)

PROJECT LOCATION MAP

NOT TO SCALE

SITE LOCATION

KEY PLAN

NOT TO SCALE

PROJECT LOCATION

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D.
THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE
38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION
AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

WARNING:
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY
CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL
1-800-252-1166 REQUIRED BY LAW

GOVERNING SPECIFICATIONS
THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION
"STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
AVAILABLE AT: <http://www.dot.state.mn.us/pre-letting/spec/index.html>

THE 2360 PLANT MIXED ASPHALT PAVEMENT COMBINED 2360/2350 (GYRATORY/MARSHALL
DESIGN) SPECIFICATION DATED 1/23/2013 SHALL APPLY.
AVAILABLE AT: <http://www.dot.state.mn.us/materials/bituminous.html>

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING
THE FIELD MANUAL DATED FEBRUARY 2011.
AVAILABLE AT: <http://www.dot.state.mn.us/trafficeng/publ/fieldmanual2011/index.html>


THE 2013 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT
STANDARD CONSTRUCTION SPECIFICATIONS AND SUPPLEMENTS OR ADDENDUMS SHALL
APPLY. COGGS/IMBA TRAIL SPECIFICATION SHALL BE THE GOVERNING SPECIFICATIONS.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX MAP
2	TRAIL SHEET LOCATOR MAP
3	TYPICAL TRAIL CROSS SECTION
4	TYPICAL TRAIL CROSS SECTIONS (TYPES A-C)
5	TRAIL ALIGNMENT DETAILS
6	SWPPP DETAILS
7-8	TRAIL DETAILS
9-12	TRAIL SIGNAGE DETAILS
13-15	WOOD - TRAIL FEATURE DETAILS
16-43	TRAIL PLANS

THIS PLAN CONTAINS 43 SHEETS

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SUPERVISION AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE
LAWS OF THE STATE OF MINNESOTA.

JAMES M. SHOBERG		
LANDSCAPE ARCHITECT	(TYPED OR PRINTED NAME)	
	5-7-13	45577
LANDSCAPE ARCHITECT	DATE	REG. NO.

CITY APPROVAL

APPROVED		5/7/13
	CHIEF ENGINEER OF TRANSPORTATION	DATE

APPROVED		5/7/13
	CHIEF ENGINEER OF UTILITIES	DATE

APPROVED		5/7/13
	CITY ENGINEER	DATE



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE 1**
DULUTH, MINNESOTA

PROJECT NO.: 12-039

DATE: MAY-7-2013

DRAWN BY: TTP

REVISIONS:

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OF THE STATE OF MINNESOTA.

JAMES M. SHOBERG	45577
LANDSCAPE ARCHITECT	REG. NO.

COVER

1

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 1 OF 43

TRAIL CONSTRUCTION NOTES:

- ALL TRAILS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS AND THE "TYPICAL TRAIL CROSS SECTION AND TRAIL CROSS SECTION TYPES "A, B & C" AS SHOWN ON SHEET 4, TRAIL ALIGNMENT PLANS 16 THROUGH 43, AND OTHER REQUIREMENTS AND DETAILS ON SHEETS 3 THROUGH 15.

LEGEND

- ===== EXISTING ROAD
- EXISTING HIKING TRAIL
- EXISTING SNOWMOBILE TRAIL
- MISSION CREEK
- A

 INTERSECTION MARKER
- 1

 TRAIL SEGMENT MARKER
- ===== PROPOSED TRAILS
- FUTURE TRAILS (NOT IN CONTRACT)

EXISTING DATA NOTES:

EXISTING TOPOGRAPHIC INFORMATION IS BASED ON ONE FOOT INTERVAL LIDAR DATA PROVIDED BY ST LOUIS COUNTY THAT WAS FLOWN THE THE SPRING OF 2011.

ALL OTHER EXISTING CONDITIONS ARE "TRACED" FROM AERIAL PHOTOGRAPHY. THEY ARE NOT TO BE CONSIDERED ACCURATE AND ARE PROVIDED AS A CONVENIENCE TO THE CONTRACTOR.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND NOTIFY OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.

THROUGHOUT THE MISSION CREEK PARK LANDSLIDE AREAS MAY BE ENCOUNTERED DURING THE CONSTRUCTION OF THE TRAIL SEGMENTS DUE TO THE JUNE 2012 FLOOD. THESE LANDSLIDE AREAS ARE NOT IDENTIFIED OR REPRESENTED IN THE LIDAR TOPOGRAPHIC DATA FOUND IN THESE CONSTRUCTION DOCUMENTS BECAUSE THAT DATA WAS CREATED PRIOR TO THE FLOOD. WHEN PROPOSED TRAIL SEGMENTS ARE ENCOUNTERED IN LANDSLIDE AREAS CONSULT WITH THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION. DISCRETIONARY EROSION CONTROL BMP MEASURES MAY NEED TO BE IMPLEMENTED AND WILL BE PAID BASED ON THE CONTRACTORS UNIT BID PRICE.

RIVER SIDE TRAIL:

TRAIL SEGMENT 5 = BLUE BUMP PUMP (1 WAY)

GROSS LENGTH SUMMARY: ±13,184 LF (±2.5 MILES)

HILL SIDE TRAIL:

TRAIL SEGMENT 1, 2, 3, & 4 = GREEN TRADITIONAL (2 WAY)

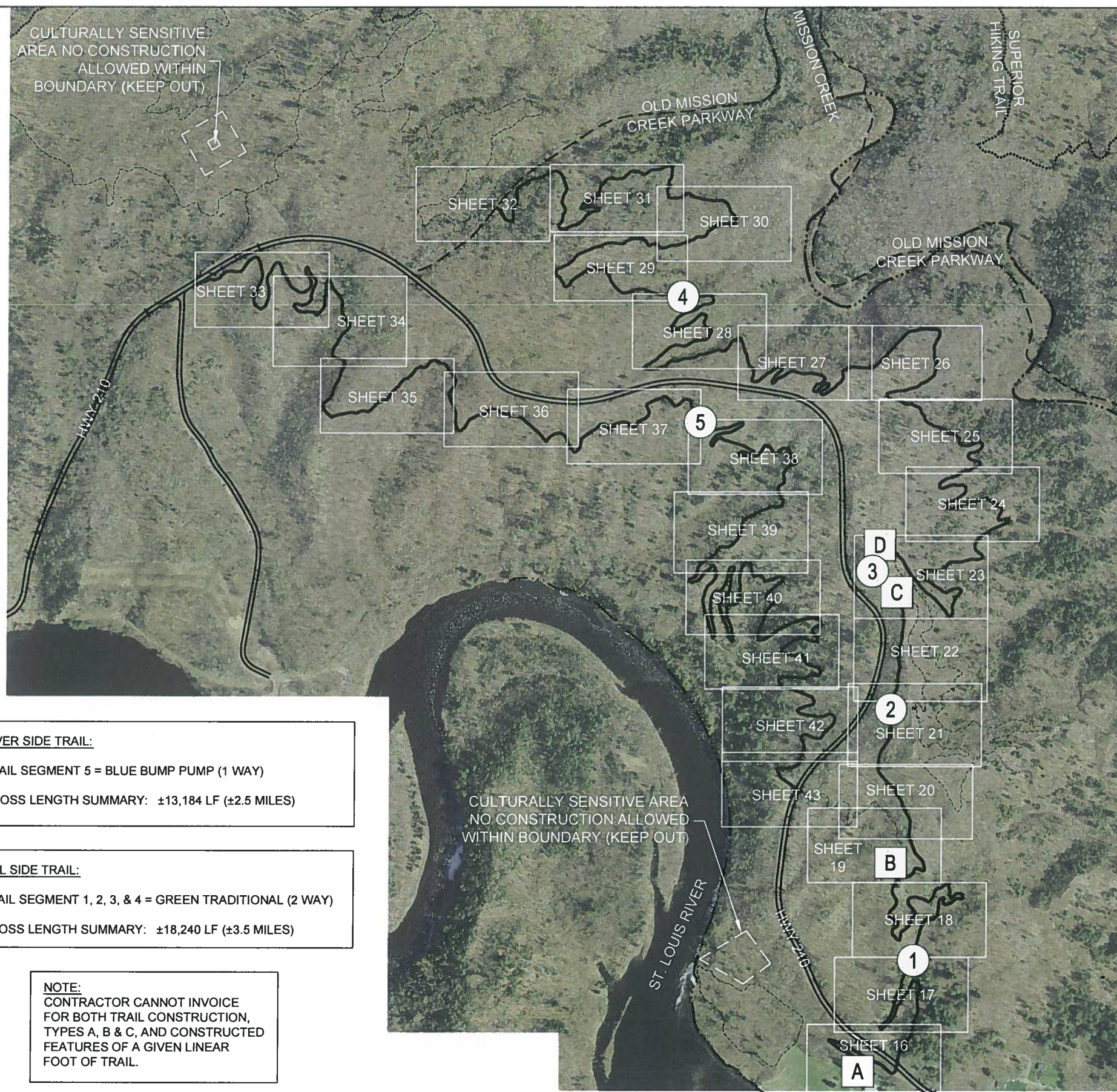
GROSS LENGTH SUMMARY: ±18,240 LF (±3.5 MILES)

NOTE:

CONTRACTOR CANNOT INVOICE FOR BOTH TRAIL CONSTRUCTION, TYPES A, B & C, AND CONSTRUCTED FEATURES OF A GIVEN LINEAR FOOT OF TRAIL.

LOCATOR MAP - HILL SIDE TRAIL (SHEETS 16-43)

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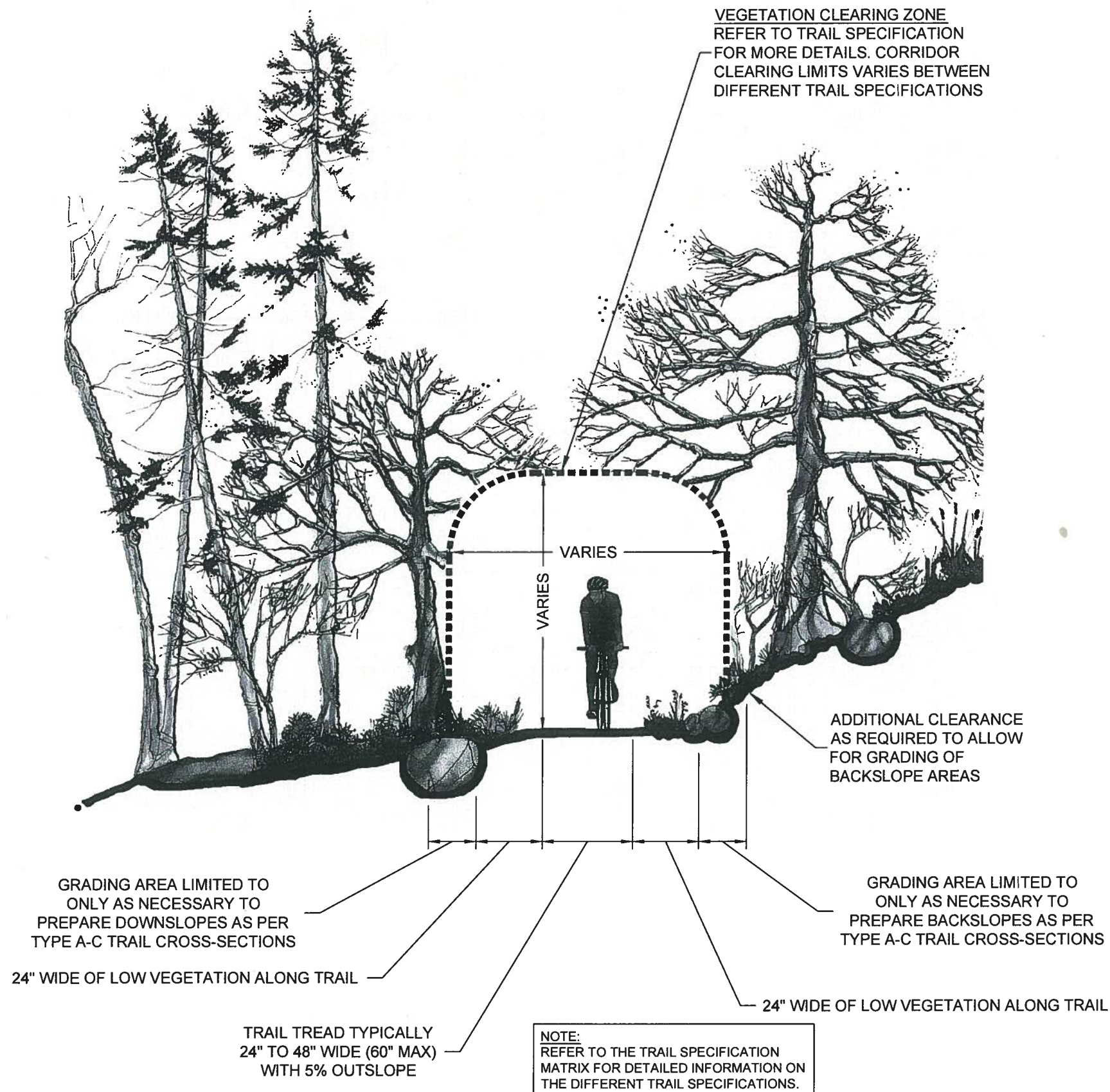
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JAMES M. SROBERG
LANDSCAPE ARCHITECT
45577
REG. NO.

**HILL SIDE
TRAIL**

2



TYPICAL TRAIL DESIGN CROSS-SECTION

NOT TO SCALE

TYPICAL TRAIL DESIGN NOTES:

1. THE GRAPHIC ON THIS SHEET ILLUSTRATES A TYPICAL TRAIL CROSS-SECTION HIGHLIGHTING TREAD AND VEGETATION CLEARANCE ZONE WIDTHS.
2. IN SELECT SITUATION THE TRAIL WIDTH MAY BE MODIFIED BY THE OWNER'S REPRESENTATIVE IN RESPONSE TO THE TERRAIN OR TO CREATE A TRAIL FEATURE.
3. SEE SPECIFICATIONS FOR FURTHER DETAILS ON TREAD AND CORRIDOR CLEARING AND TYPICAL TRAIL DESIGN CROSS-SECTIONS
4. AFTER APPROVAL OF ROUGH GRADING BY OWNER'S REPRESENTATIVE CONTRACTOR SHALL FINE GRADE TRAIL CROSS-SLOPE, BACKSLOPES AND DOWNSLOPES IN ACCORDANCE WITH THE CONTRACT DOCUMENT REQUIREMENTS.
5. IF DEEMED NECESSARY BY THE OWNER'S REPRESENTATIVE EROSION CONTROL BLANKETS AND/OR COIR ROLLS AS LISTED IN THE BID FORM MAY BE INCORPORATED IN SELECT LOCATIONS TO FURTHER STABILIZE THE SOILS. USE OF THESE ITEMS WILL LIKELY BE LIMITED TO AREAS SUBJECT TO EROSION. (SEE SWPPP FOR FURTHER DETAILS)
6. ALL DISTURBED AREAS NOT PART OF ACTIVE TREAD TO BE SEEDING AND MULCHED WITHIN 7 DAYS OF NOT BEING WORKED. SEE (SWPPP) STORM WATER POLLUTION PREVENTION PLAN FOR DETAILS.
7. SEE SWPPP & SPECIFICATIONS FOR SEED MIX DETAILS AND NECESSARY BEST MANAGEMENT PRACTICES FOR EROSION CONTROL MEASURES.
8. AFTER COMPLETION OF ALL GRADING, THE TRAIL TREAD SHALL BE MECHANICALLY COMPACTED TO ITS APPROVED WIDTH USING A VIBRATORY PLATE, SHEEP'S FOOT, OR OTHER APPROVED COMPACTOR ONE PASS.
9. CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
10. NO EXCAVATION OR FILL PERMITTED IN WET AREAS. WET AREAS WILL BE MARKED IN THE FIELD BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED WET AREAS.

TRAIL BIDDING NOTES:

1. TREE REMOVAL, STUMP REMOVAL, BRUSH REMOVAL, AND LIMB TRIMMING IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATION FOR FURTHER DETAILS)
2. TRAIL TREAD GRADING AND COMPACTING IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATION FOR FURTHER DETAILS)
3. PUSHING ASIDE ROCKS OR FRACTURED STONE ENCOUNTERED WHILE GRADING THE TRAIL IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
4. GRADING THROUGH LOW SPOTS, EARTHEN PILES, MISCELLANEOUS DEBRIS, AND FALLEN WOODY MATERIALS IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
5. ALL TURNS NOT DEFINED AS A BERM OR SWITCHBACK ARE TO BE INSLOPED TURNS AS SPECIFIED. INSLOPED TURNS ARE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
6. GRADE REVERSALS ARE REQUIRED AT A MINIMUM EVERY 100 LF. GRADE REVERSALS ARE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C". (SEE SPECIFICATIONS FOR FURTHER DETAILS)
7. SEED AND MULCH OF NON TREAD DISTURBED AREAS AS A RESULT OF THE TRAIL CONSTRUCTION ARE INCLUDED IN THE UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES "A, B & C".



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**DULUTH
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MISSION CREEK
PHASE 1**
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DRAWN BY: TTP

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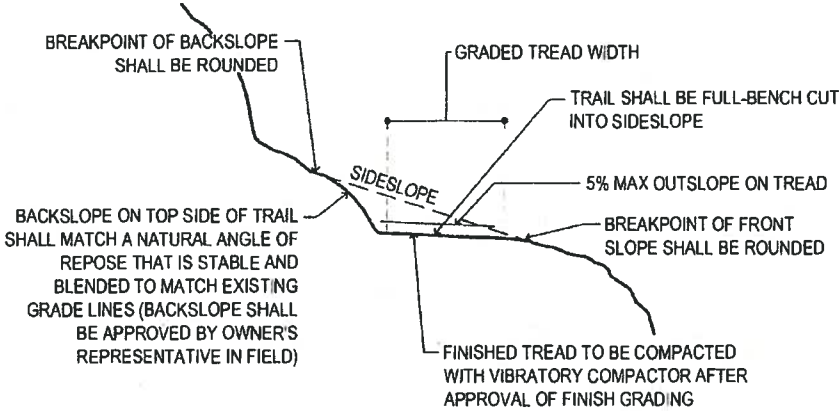
**TRAIL
DETAILS**

3

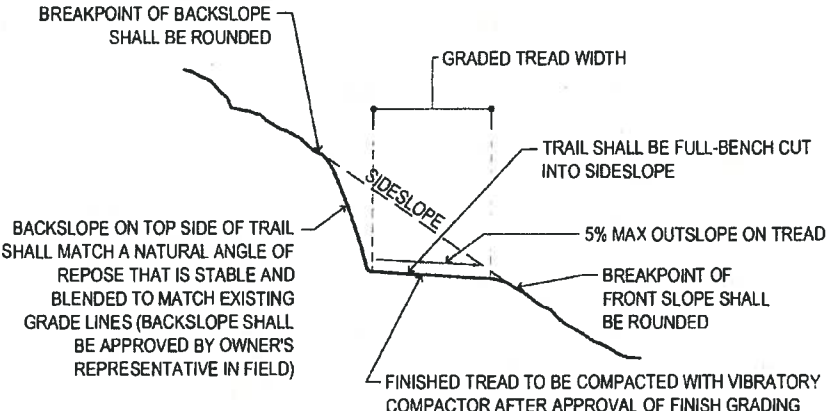
CONSTRUCTION NOTE:

PARTIAL BENCH CUT IS ALLOWED WHEN DONE PROPERLY WITH A DOWNHILL RETAINING WALL AND COMPACTED BACKFILL. REFER TO PAGE 159 OF (TRAIL SOLUTIONS: IMBA'S GUIDE TO BUILDING BETTER SINGLETRACK).

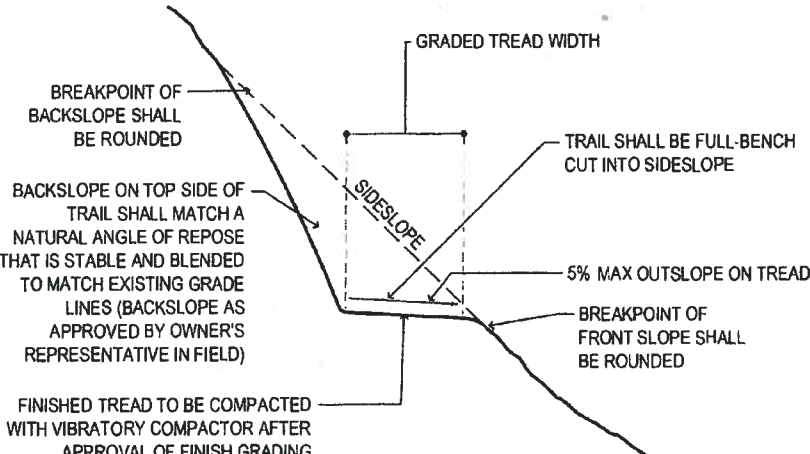
MEASUREMENT AND PAYMENTS FOR TRAIL CONSTRUCTION TYPES IS BASED ON THE SLOPE AVERAGES AS DEPICTED IN THE TRAIL ALIGNMENT SECTION OF THIS PLAN SET AND IN THE TRAIL SLOPE ANALYSIS MAP.



TYPE "A" TRAIL 0%-15% SIDESLOPE



TYPE "B" TRAIL 16%-60% SIDESLOPE



TYPE "C" TRAIL 61+% SIDESLOPE

FIELD MEASUREMENT NOTES:

1. MEASUREMENT & PAYMENT FOR TRAIL CONSTRUCTION TYPE IS BASED ON AVERAGE SLOPE GRADIENTS AS DEPICTED IN PLANS. GRADING THROUGH UNEVEN GRADES AND UNDULATIONS IS INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPE "A, B, & C" (SEE SPECIFICATIONS FOR FURTHER DETAILS)
2. TRAIL TYPES AND QUANTITIES ARE PROVIDED AS A CONVENIENCE TO THE CONTRACTOR. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD QUANTITIES AND NOTIFY OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.

TYPICAL TRAIL CROSS-SECTIONS (A-C TRAIL TYPES)

NOT TO SCALE


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**TRAIL
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4

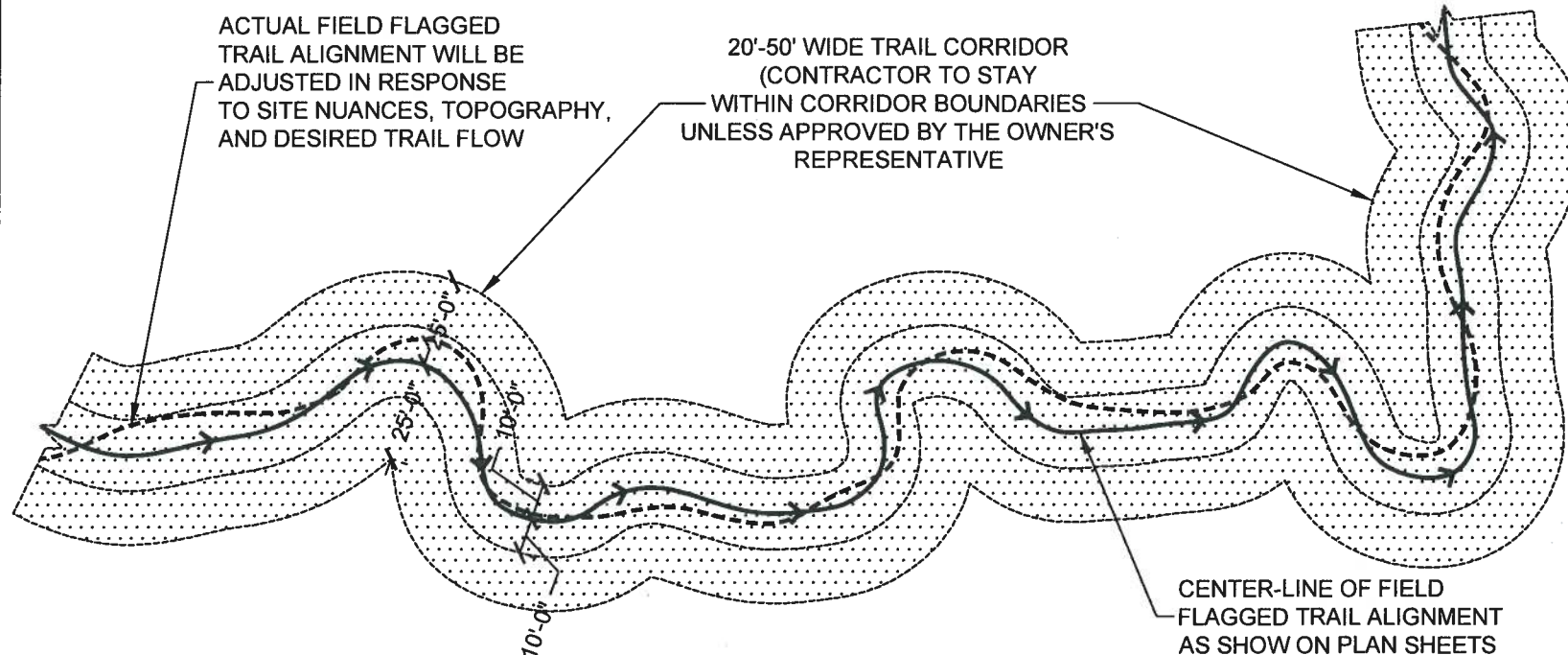
NOTES:

PLAN SHEETS 16-43 ILLUSTRATE THE CENTER OF A 20 TO 50-FOOT WIDE CORRIDOR FOR TRAIL CONSTRUCTION, WHICH ARE PROVIDED TO ESTABLISH AN OVERALL TRAIL LAYOUT PLAN AND TO ESTIMATE OVERALL LINEAL FEET OF TRAIL. TO ENSURE PROPER ALIGNMENT AND TO ACCOMMODATE SITE NUANCES, THE ACTUAL ALIGNMENT OF THE TRAIL WITHIN THESE CORRIDORS WILL BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE AT THE POINT OF CONSTRUCTION, AS THE FOLLOWING GRAPHIC ILLUSTRATES.

ST LOUIS COUNTY PERMITS A 20-FOOT WIDE CORRIDOR. IF THE ALIGNMENT OF THE TRAIL NEEDS TO GO BEYOND THE 20-FOOT CORRIDOR, 10-FEET ON EITHER SIDE OF THE CENTERLINE, THE NEW ALIGNMENT MUST BE APPROVED BY THE ST LOUIS COUNTY FOREST RECREATION SPECIALIST.

THE 50-FOOT WIDE CORRIDOR ALIGNMENT IS THE CITY OF DULUTH'S CORRIDOR REQUIREMENTS, 25-FEET ON EITHER SIDE OF THE CENTERLINE. ALIGNMENT OUTSIDE OF THIS CORRIDOR MUST BE APPROVED BY THE CITY OF DULUTH TRAILS COORDINATOR.

SEE SHEET 2 FOR APPROXIMATE LOCATION FOR CITY, COUNTY AND PRIVATE LANDS.



TRAIL LAYOUT AND FIELD LAYOUT REQUIREMENTS

NOT TO SCALE

1
5

Field Alignment Protocol:

The actual trail layout and alignment will be determined in the field using the following protocol:

1. Owner's Representative shall pin and/or hang flags of sufficient density to communicate intent to construction team(s) within each trail corridor shown on the plan sheets to establish the trail alignment prior to construction. Note that trail corridors may change as determined by Owner's Representative as warranted by site conditions.
2. -The angle of the existing side slope shall be determined by referring to this plan set and the "Average Slope Gradient Map" found in the specifications.
-The Owner's Representative shall prepare a document verifying trail types and quantities to be constructed. Owner's Representative and Contractor shall sign the document indicating agreement with quantities and types of trails to be constructed.
-Important Contract Requirement: Contractor's lead person/field manager shall have completed at least 40 hours of professional trail building training as approved by the Owner's Representative and as provided by a current member of the Professional Trail Builder's Association or the International Mountain Bike Association prior to start of construction and will need to provide proof of program completion.
3. Contractor shall undertake initial corridor brushing based on flagged trail alignment to establish visible trail corridor.
4. Upon completion of pin flagging and/or hang flagging the Owner's Representative and Contractor shall walk trail alignment to establish an understanding of design intent and expectations, and make any final adjustments prior to rough grading of trail. (Only if necessary after brushing, as determined by Owner's Representative.)
5. Contractor undertakes rough grading of trail following pin flagging and/or hang flagging of the final trail alignment using techniques as defined in the contract documents.
6. Owner's Representative and Contractor walk rough graded trail to ensure conformance with sustainable design standards provided in these contract documents or otherwise stipulated.
7. Contractor completes trail finish grading and detail work in accordance with contract documents, including cutting and rounding the backslope, outsloping the tread, compacting the tread, and completing other finish work.
8. Owner's Representative and Contractor walk trail corridor for preliminary field inspection and approval, including final determination of trail features and lineal feet of trail that was constructed to establish basis for payment.
9. Contractor completes final trail work in accordance with contract documents.
10. Owner's Representative and Contractor walk and/or ride completed trail for final field inspection and approval.



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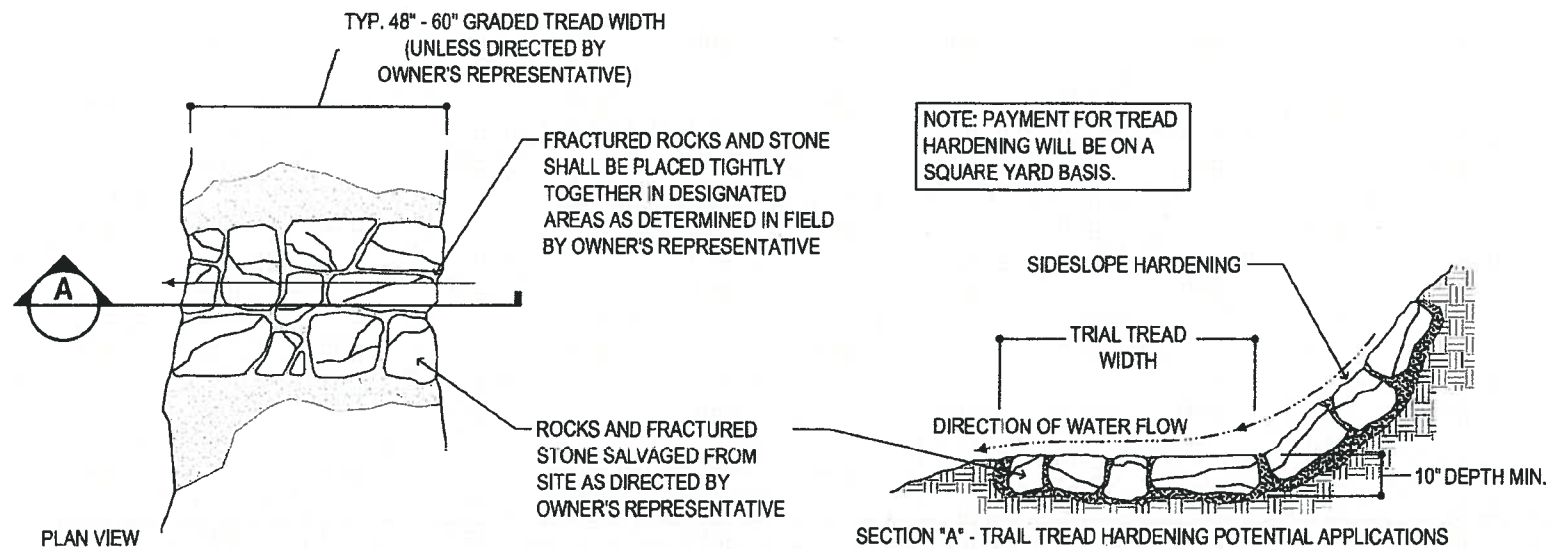
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**TRAIL
DETAILS**

5



EXAMPLE IMAGE OF TRAIL TREAD HARDENING

CONSTRUCTION NOTE:

BACKFILL BEDDING MATERIAL SHALL BE 3\" - 6\" OF 3/4\" - CRUSHED ROCK. THE SAME CRUSHED ROCK CAN BE UTILIZED FOR FILL BETWEEN THE SET ROCK/STONE.

10\" MINIMUM ROCK/STONE SET DEPTH.

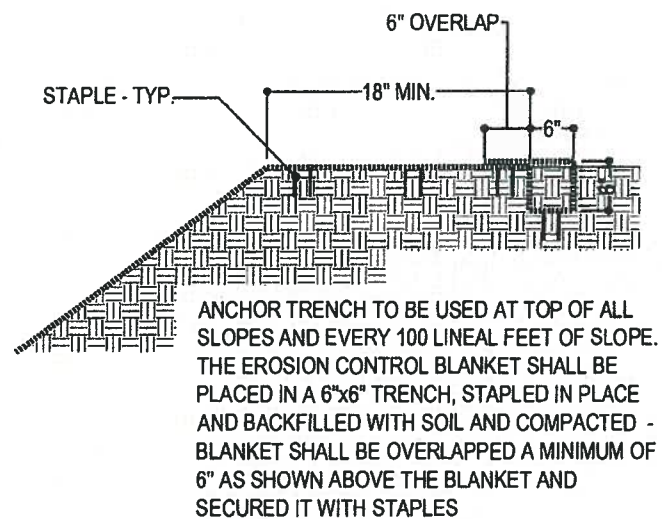
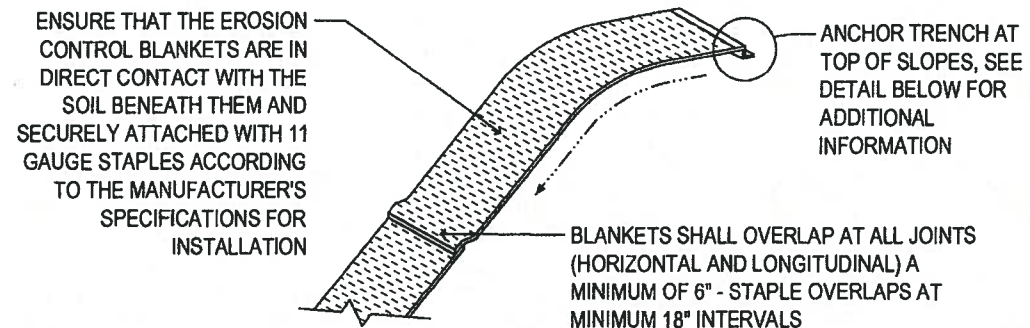
SEAMS RUNNING IN THE DIRECTION OF TRAVEL SHALL BE MINIMIZED IN BOTH LENGTH AND WIDTH. SEAM WIDTH SHALL BE MINIMIZED AND SEAM STAGGERING SHALL BE USED WHERE POSSIBLE.

EXTENT OF ARMORING WILL BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE.

TRAIL TREAD ROCK ARMORING AND SIDESLOPE ARMORING DETAIL

NOT TO SCALE

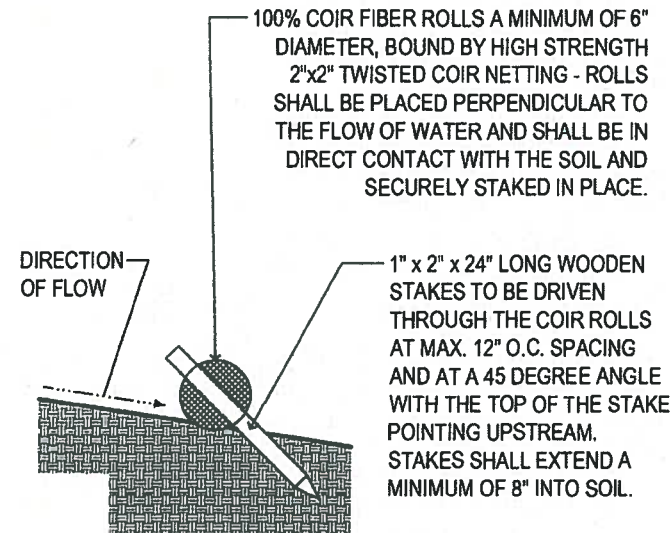
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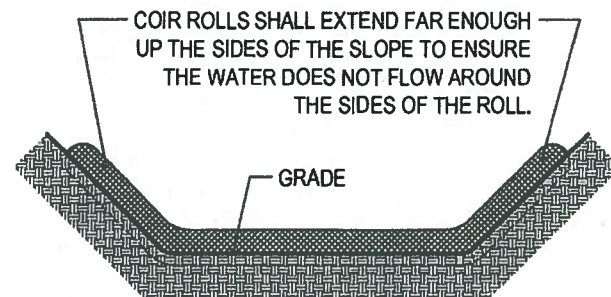
ANCHOR TRENCH SECTION DETAIL

EROSION CONTROL BLANKET:
CATEGORY 3: AS DIRECTED BY OWNER'S REPRESENTATIVE FOR DISTURBED AREAS WITH SLOPES BETWEEN 3:1 AND 2:1, COVER WITH CATEGORY 3 EROSION CONTROL BLANKET CONSISTING OF 100% STRAW MATRIX, SUCH AS WESTERN EXCELSIOR EXCEL SS-2 WITH ALL NATURAL NETTING (OR APPROVED EQUAL) MEETING THE MnDOT SPECIFICATION SECTION 3885 REQUIREMENTS.

CATEGORY 4: AS DIRECTED BY OWNER'S REPRESENTATIVE FOR DISTURBED AREAS WITH 2:1 SLOPES OR OVER, COVER WITH CATEGORY 4 EROSION CONTROL BLANKET CONSISTING OF 30% COCONUT / 70% STRAW BLEND, SUCH AS WESTERN EXCELSIOR EXCEL CS-3 WITH ALL NATURAL NETTING (OR APPROVED EQUAL) MEETING THE MnDOT SPECIFICATION SECTION 3885 REQUIREMENTS.



CROSS-SECTION DETAIL



SECTION VIEW

COIR ROLL DETAIL

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3/6

WOOD FIBER BLANKET DETAIL

NOT TO SCALE

2/6

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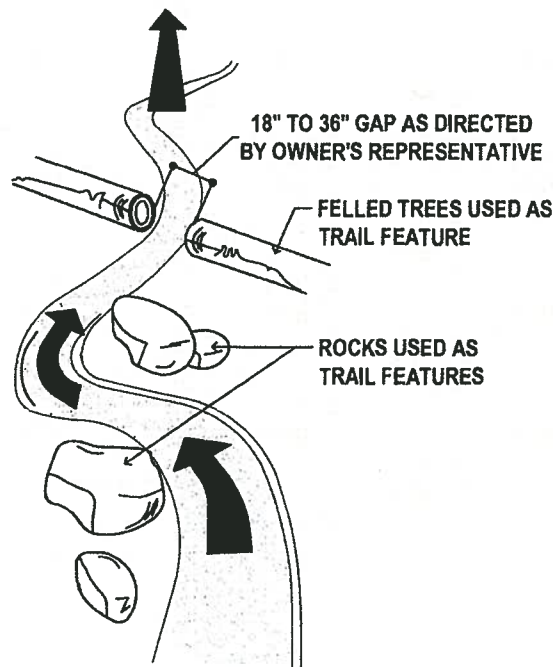
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SWPPP DETAILS

6



TRAIL FEATURES PLACEMENT NOTE:
FELLED TREES AND ROCKS ENCOUNTERED ALONG THE TRAIL SHALL, AT THE DISCRETION OF THE OWNER'S REPRESENTATIVE, CAN BE USED AS A TRAIL FEATURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLACEMENT OF FELLED TREES AND MOVEABLE ROCKS ON THE EDGE OF THE TRAIL AS DIRECTED BY THE OWNER'S REPRESENTATIVE. MOVEMENT OF ROCKS WILL BE LIMITED TO WITHIN 5 FEET OF ORIGINAL LOCATION. THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT BID PRICE FOR TRAIL CONSTRUCTION TYPES A, B & C.

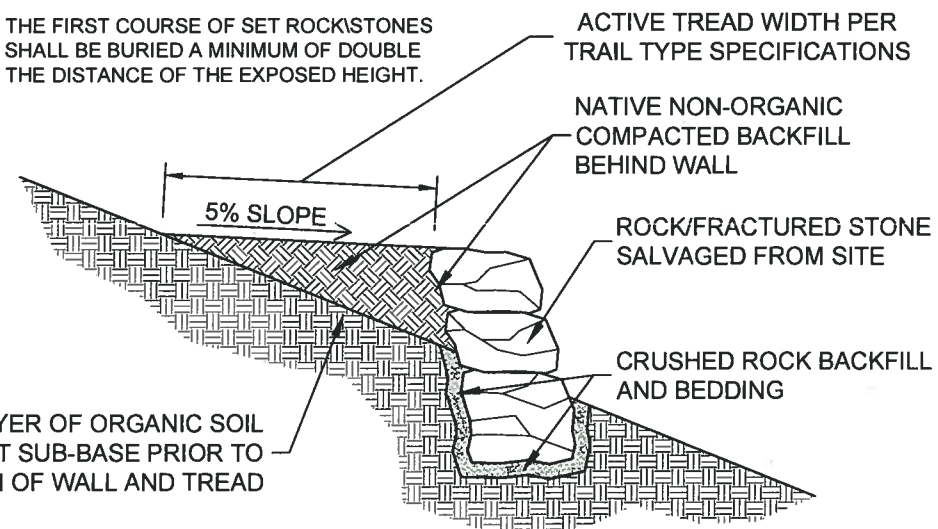
ROCKS AND FELLED TREES AS TRAIL FEATURES DETAIL

NOT TO SCALE

1

CONSTRUCTION NOTES:

1. BEDDING MATERIAL SHALL BE 3"- 6" OF 3/4" - CRUSHED ROCK.
2. MINIMUM SET DEPTH FOR STONES/ROCKS SHALL BE 10".
3. THE FIRST COURSE OF SET ROCK/STONES SHALL BE BURIED A MINIMUM OF DOUBLE THE DISTANCE OF THE EXPOSED HEIGHT.



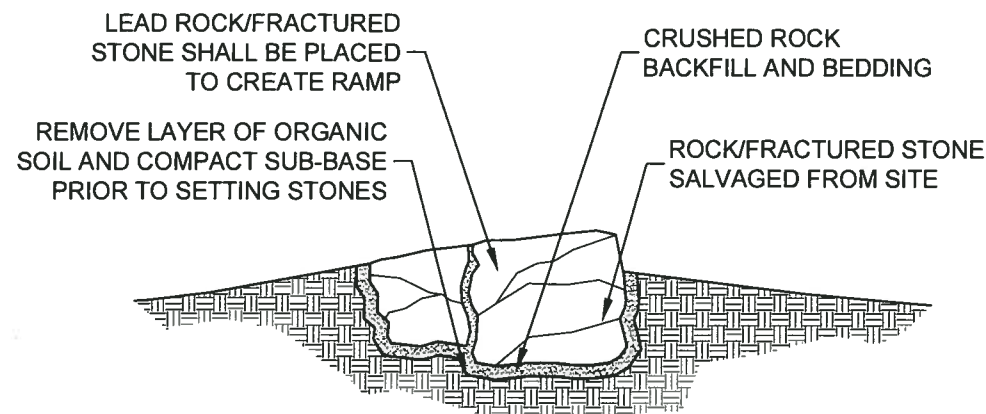
ROCK RETAINING WALL

NOT TO SCALE

2

PAYMENT NOTE:

PAYMENT FOR ROCK JUMPS WILL BE FOR ONLY THOSE THAT ARE CREATED BY THE CONTRACTOR. IN CASES WHERE THE TRAIL IS ROUTED OVER AN EXISTING IN-PLACE ROCK, NO EXTRA PAYMENT WILL BE PROVIDED.



CREATED ROCK JUMP

NOT TO SCALE

3

CONSTRUCTION NOTES:

1. BEDDING MATERIAL SHALL BE 3"- 6" OF 3/4" - CRUSHED ROCK. THE SAME CRUSHED ROCK SHALL BE UTILIZED FOR FILL BETWEEN THE SET ROCK/STONES.
2. MINIMUM SET DEPTH FOR STONES/ROCKS SHALL BE 10".
3. SEAMS RUNNING IN THE DIRECTION OF TRAVEL SHALL BE MINIMIZED IN BOTH LENGTH AND WIDTH. SEAM WIDTH SHALL BE MINIMIZED AND SEAM STAGGERING SHALL BE USED WHERE POSSIBLE.
4. SET ROCK/STONE SHALL BE BURIED A MINIMUM OF DOUBLE THE DISTANCE OF THE EXPOSED HEIGHT.
5. ALLOWABLE JUMP HEIGHT RANGE IS BETWEEN 6" TO 24".
6. THE DETERMINATION OF THE PLACEMENT OF ANY ROCK JUMPS WILL BE DONE BY THE OWNER'S REPRESENTATIVE AFTER THE COMPLETION OF THE ROUGH GRADING.



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE 1**
DULUTH, MINNESOTA

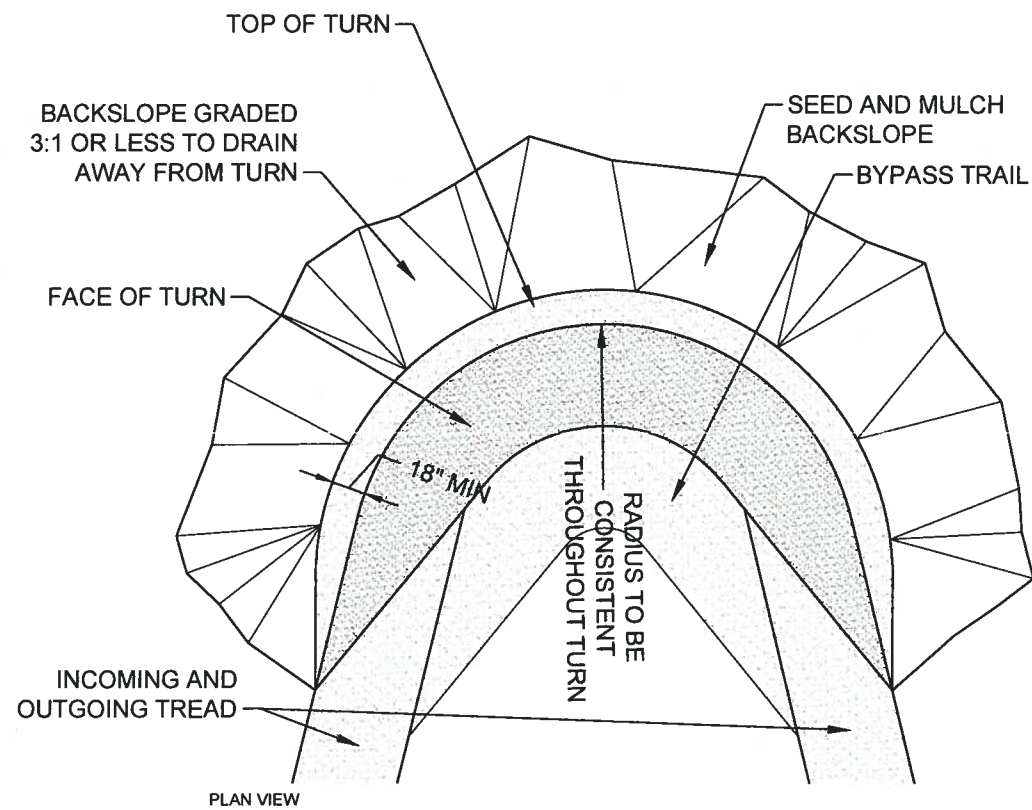
PROJECT NO.: 12-039
DATE: MAY-7-2013
DRAWN BY: TTP
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JAMES M. SHROBERG
LANDSCAPE ARCHITECT
45577
RES-140

**TRAIL
DETAILS**

7



PAYMENT NOTE:

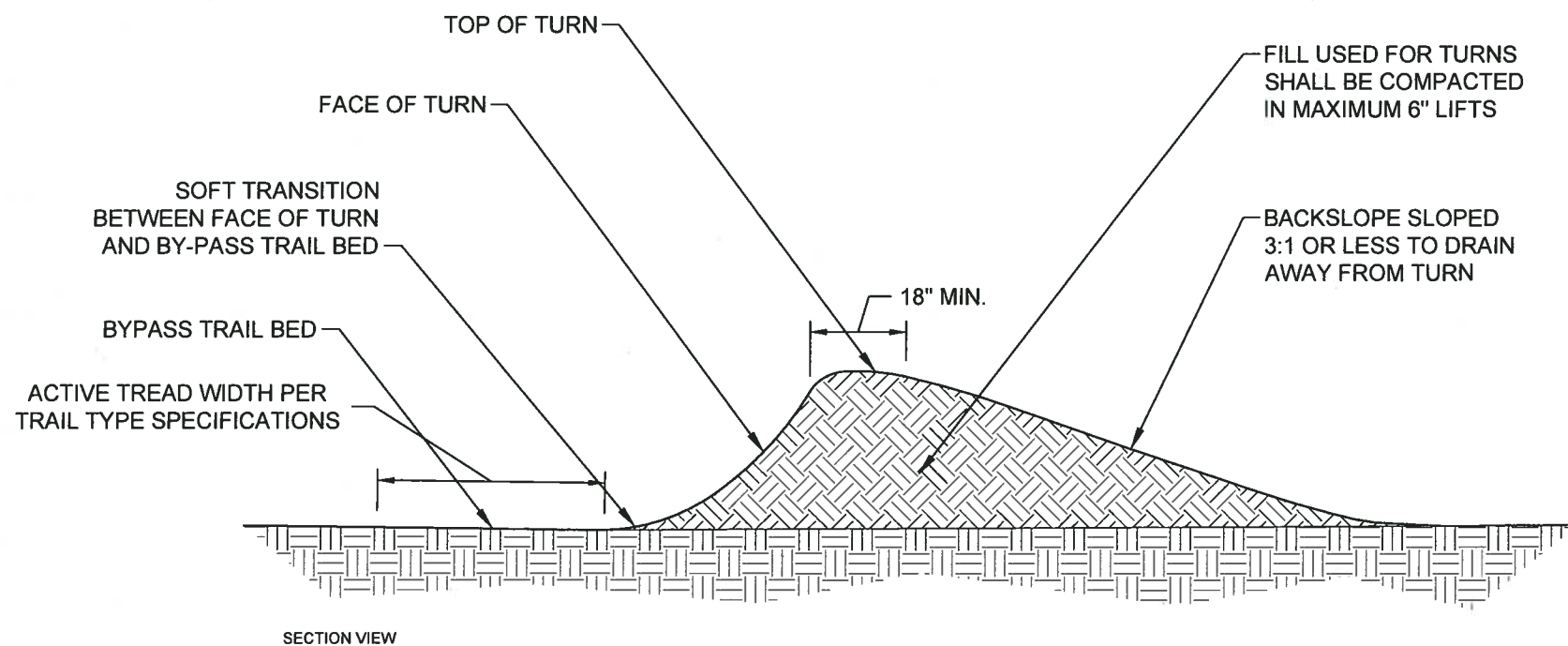
PAYMENT FOR BERMED TURNS WILL BE ON A LINEAL FOOT BASIS, FOR CONSTRUCTED TURNS PAYMENT WILL BE ON A PER UNIT BASIS. IN CASES WHERE TRAIL IS ROUTED WHERE AN EXISTING EMBANKMENT OR SIDE HILL IS USED FOR A TURN, NO EXTRA PAYMENT WILL BE PROVIDED.

TURN LENGTH IS MEASURED AT THE POINT ON EACH END OF THE TURN WHERE THE HEIGHT EXCEEDS 12" ABOVE THE BYPASS TRAIL GRADE.

SEED AND MULCH ARE INCLUDED IN THE UNIT BID PRICE FOR TURNS.

NOTES:

1. ACTUAL TURN SIZES AND LENGTHS WILL BE DETERMINED IN THE FIELD BY THE OWNERS REPRESENTATIVE AND WILL BE BASED ON TRAIL TYPE SPECIFICATIONS.
2. TURNS SHALL BE BLENDED INTO THE EXISTING TOPOGRAPHIC FEATURES OF THE SITE.
3. TURN LENGTH AND RADIUS VARY AND WILL BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE IN THE FIELD.
4. PROPER DRAINAGE OF THE INCOMING AND OUTGOING TRAIL TRAIL TREAD AND THE INSIDE OF A TURN IS ESSENTIAL. CAREFUL ATTENTION MUST BE PAID TO ENSURE POSITIVE DRAINAGE AWAY FROM THE TURN. A TURN WILL NOT BE APPROVED FOR PAYMENT UNTIL THE OWNER'S REPRESENTATIVE HAS APPROVED THE TURN BERM FOR PROPER DRAINAGE.
5. GRADE DIPS BEFORE AND AFTER TURNS ARE INCLUDED IN THE UNIT BID PRICE.



BERMED TURN & CONSTRUCTED TURN DETAIL

NOT TO SCALE

1/8



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INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION

**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE 1**

DULUTH, MINNESOTA

PROJECT NO.: 12-039

DATE: MAY-7-2013

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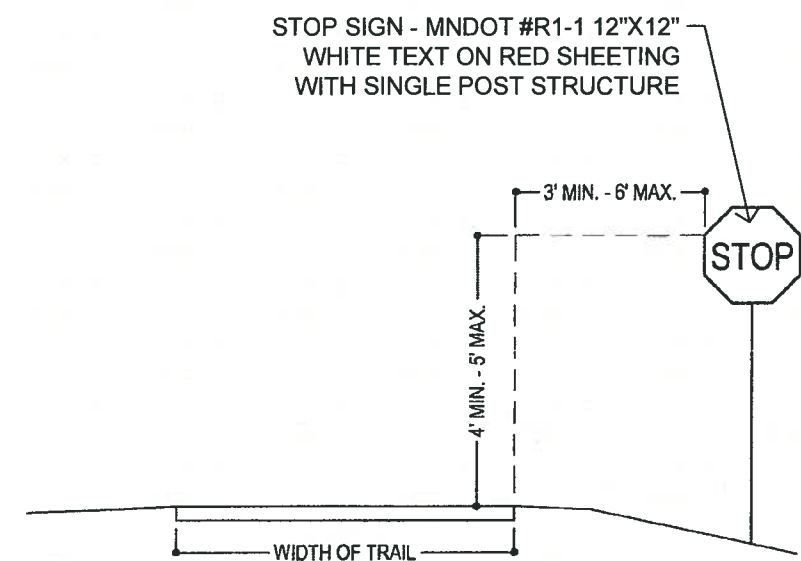
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LANDSCAPE ARCHITECT REG. NO.

TRAIL
DETAILS

8

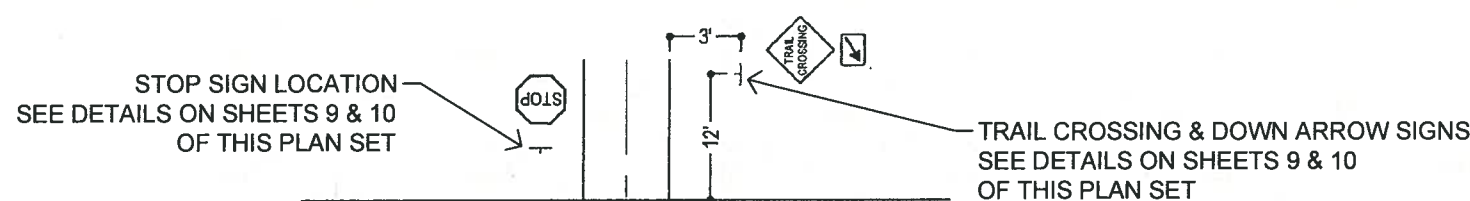


ELEVATION VIEW

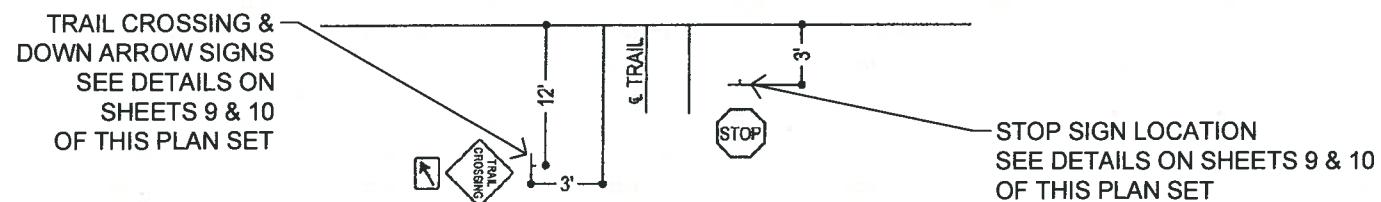
STOP SIGN DETAIL

NOT TO SCALE

1
9



ROAD / DRIVE

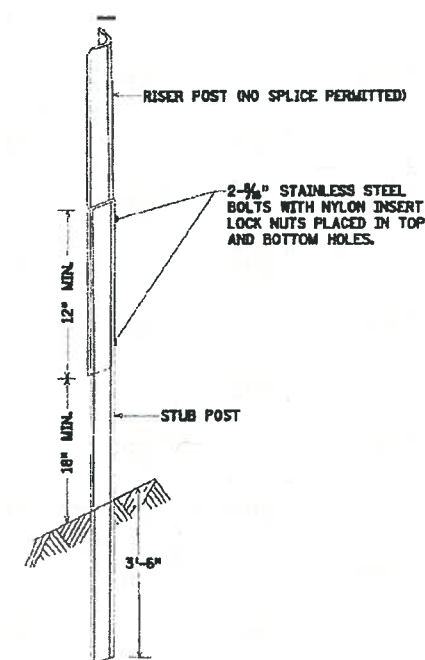


PLAN VIEW

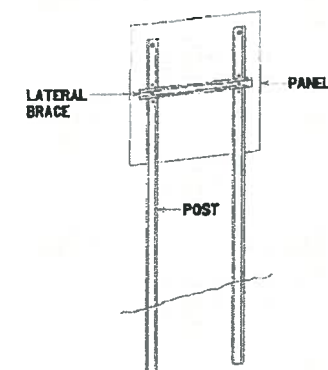
CROSSWALK STRIPING DETAIL

NOT TO SCALE

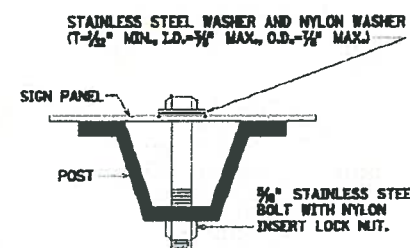
2
8



U POST SPLICE



TYPICAL TYPE C INSTALLATION



U POST MOUNTING
TYPE C SIGNS

NOTES:

1. USE 3" STUB POSTS, RISER POSTS, STRINGERS, KNEE BRACES, LATERAL BRACES AND KNEE BRACE STUB POSTS. ALL SHALL CONFORM TO MN/DOT 3401.
2. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS MANUAL UNLESS OTHERWISE SPECIFIED.
3. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
4. USE STAINLESS STEEL 3/4" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
5. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
6. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 3/2'.
7. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MN/DOT 3306 AND GALVANIZED IN ACCORDANCE WITH MN/DOT 3394.
8. COLLARS SHALL BE USED TO SHOW OVERLAYS AND DEMOUNTABLE LEGEND AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MN/DOT 3352.2AB.
9. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
10. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
11. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

SIGN STRUCTURE DETAIL

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3
8



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PHASE 1**
DULUTH, MINNESOTA

PROJECT NO.: 12-039

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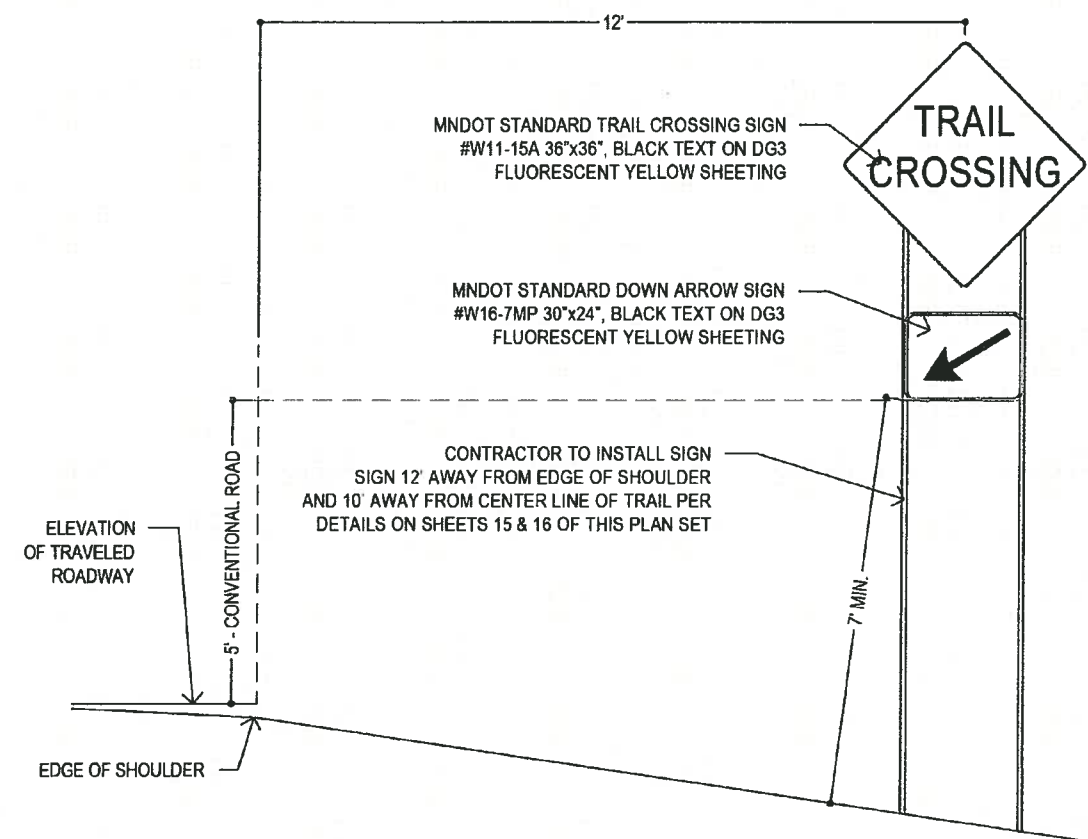
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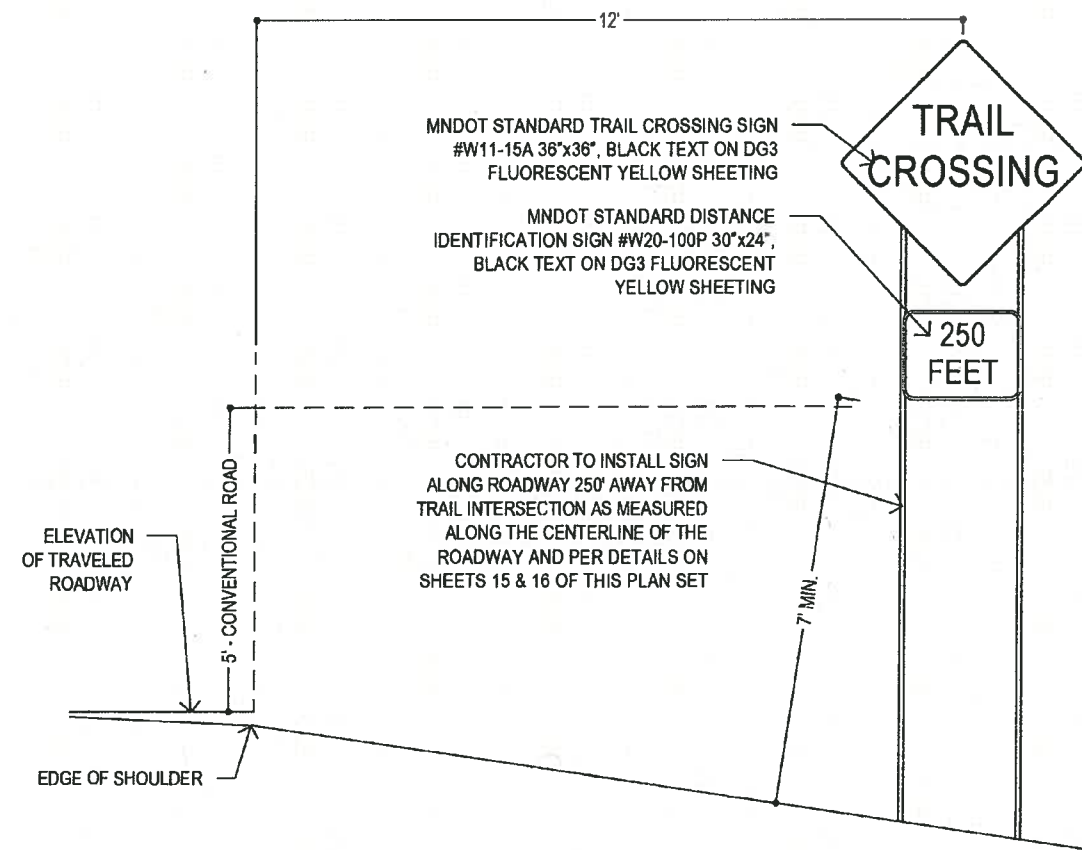
**TRAIL
SIGNAGE
DETAILS**

9



TRAIL CROSSING SIGN DETAIL

NOT TO SCALE

 $\frac{1}{10}$ 

TRAIL CROSSING AHEAD SIGN DETAIL

NOT TO SCALE

 $\frac{2}{10}$ 

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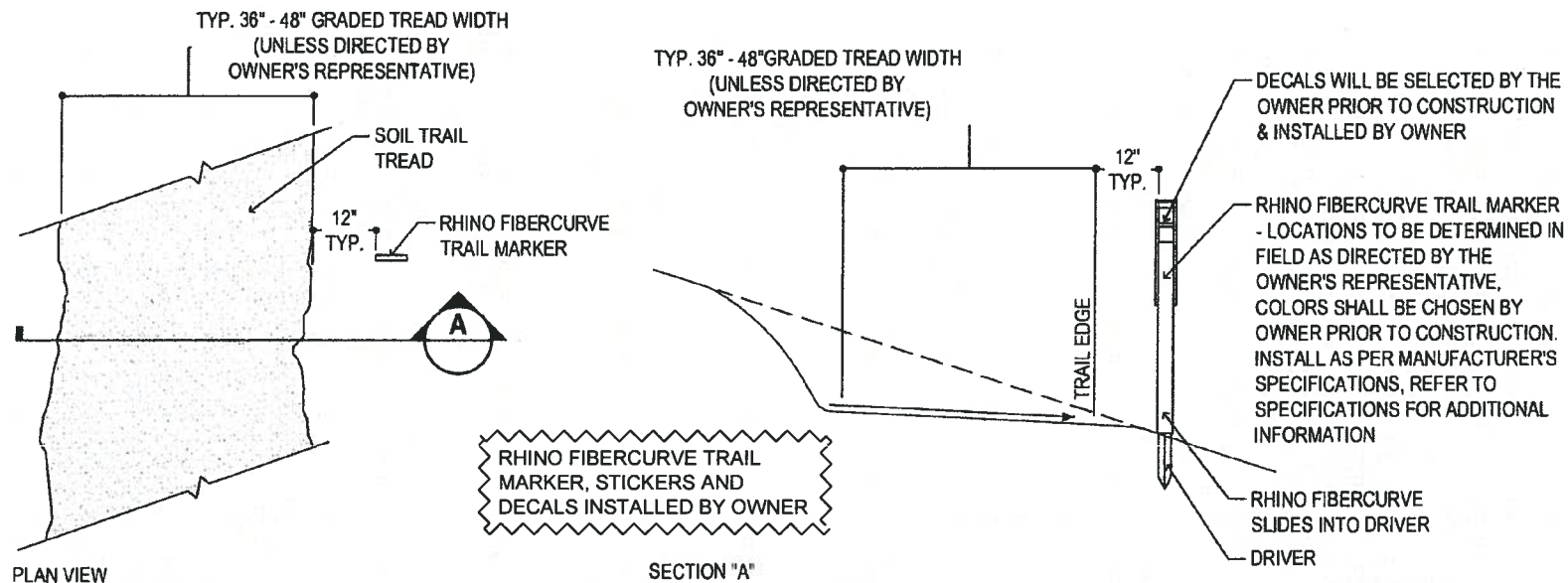
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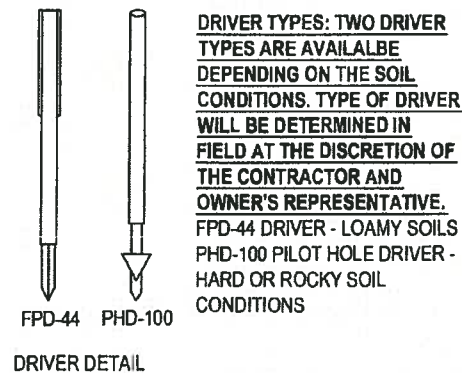
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TRAIL SIGNAGE DETAILS

10



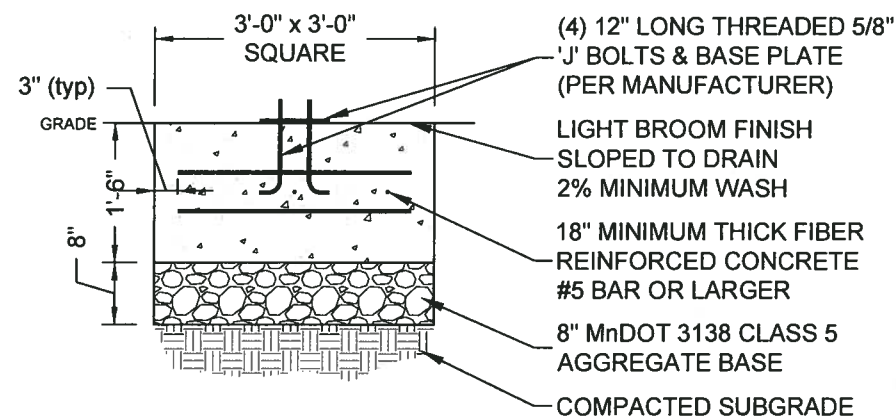
MANUFACTURER CONTACT INFORMATION:
 RHINO, A DEVISION OF REPNET, INC.
 280 UNIVERSITY DRIVE SW
 WASECA, MN 56093
 PH: 1-800-522-4343
 FAX: 1-888-522-4343



EXAMPLES OF TRAIL MARKER

TRAIL MARKER DETAIL (BY OWNER)

NOT TO SCALE



CONCRETE BASE DETAIL
 NOT TO SCALE

MANUFACTURER CONTACT INFORMATION:

Iron Rangers, LLC
 5009 N Burns RD
 Spokane Valley, WA 99216
 PH: 1-800-262-3322
 FAX: 1-509-326-5436

IRON RANGER FEE

COLLECTION SPECIFICATIONS:

Model: FS836 Shell / FS836 Insert Series
 Option: EB-1 Empty Envelope Box
 Color: Martin Brown Powder Coated Finish



EXAMPLE OF
 FEE STATION

INSTALLATION:

INSTALL PER MANUFACTURER
 RECOMMENDATIONS IN CONCRETE BASE.

CONTRACTOR RESPONSIBLE
 FOR INSTALLATION OF IRON
 RANGER FEE STATION

IRON RANGER PAY STATION (1 REQUIRED IN BASE BID)

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TRAIL SIGNAGE DETAILS

11



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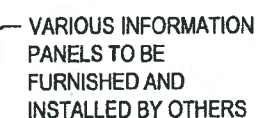
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 JAMES M. SROBERG 455
LANDSCAPE ARCHITECT REG.

TRAIL SIGNAGE DETAILS

12



SECTION

SCALE: 3/4"=1'-0"

INFORMATION BOARD #1 - FRONT VIEW

SCALE: 3/4"=1'-0"

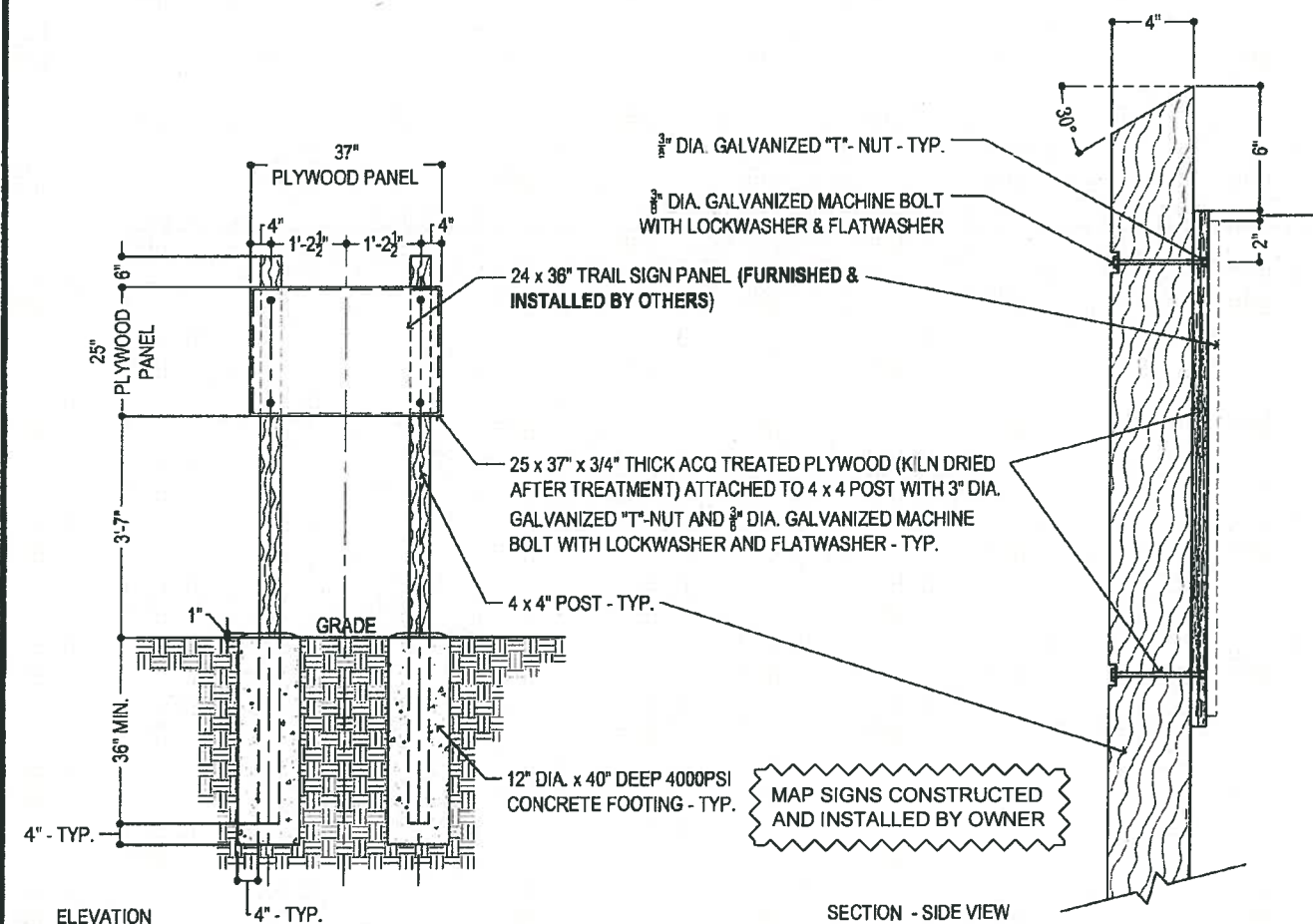
NOTES:

WOOD ABOVE GROUND TO BE STAINED WITH BROWN EXTERIOR LATEX PAINT. REFER TO DNR SIGN MANUAL FOR COLOR SPECIFICATIONS.

WOOD TO BE: TREATED TO 0.4 LB./CU.FT. RETENTION. - *ACO*

BULLETIN BOARD PLYWOOD TO BE EXTERIOR GRADE (AC), 2-1/4" SHEETS BACK TO BACK (GLUED).


BULLETIN BOARD PLYWOOD TO BE EXTERIOR GRADE (AC), 2-1/4" SHEETS BACK TO BACK (GLOUED).
MOLDING STRIPS TO BE USED ON BOTH SIDES TO HOLD PLYWOOD IN (MOLDING TO BE 1/2" x 1/2").



TRAIL MAP SIGN DETAIL (BY OWNER)

.NOT TO SCALE

①

BUREAU OF ENGINEERING		MINNESOTA DEPARTMENT OF NATURAL RESOURCES	
Designer LISKA	Date JUNE 78	CONSTRUCTION DETAILS	
Design Unit/Region SITE DEVELOPMENT	Supr. (Initials)	INFORMATION BOARD #1	
Revision Date(s) AUG 94 (R.L.)			
Date _____ Assistant Administrator _____		Digital <input type="checkbox"/>	Hardcopy <input checked="" type="checkbox"/>
		Sheet No. 6	File No. SDG .00014

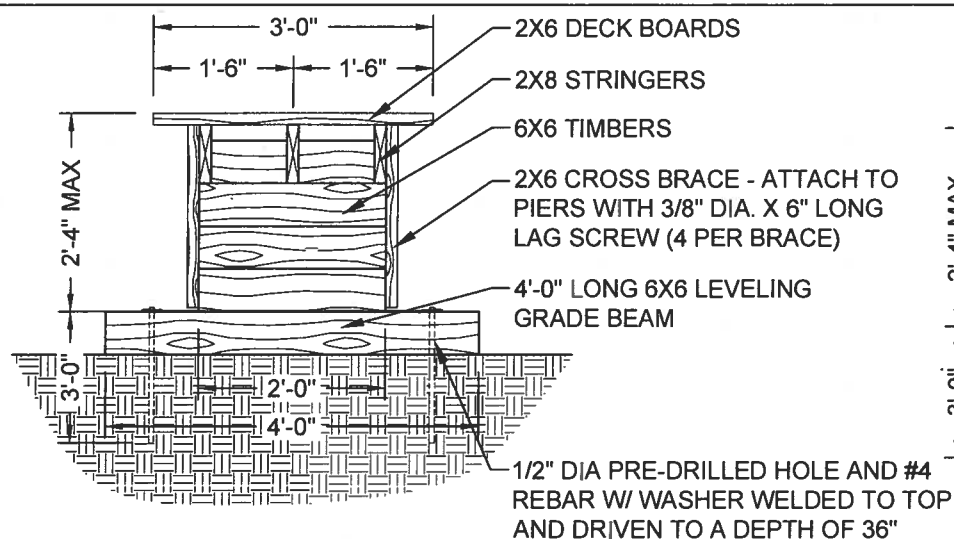
TRAILHEAD KIOSK SIGN - MN DNR STANDARD (BY OWNER)

NOT TO SCALE

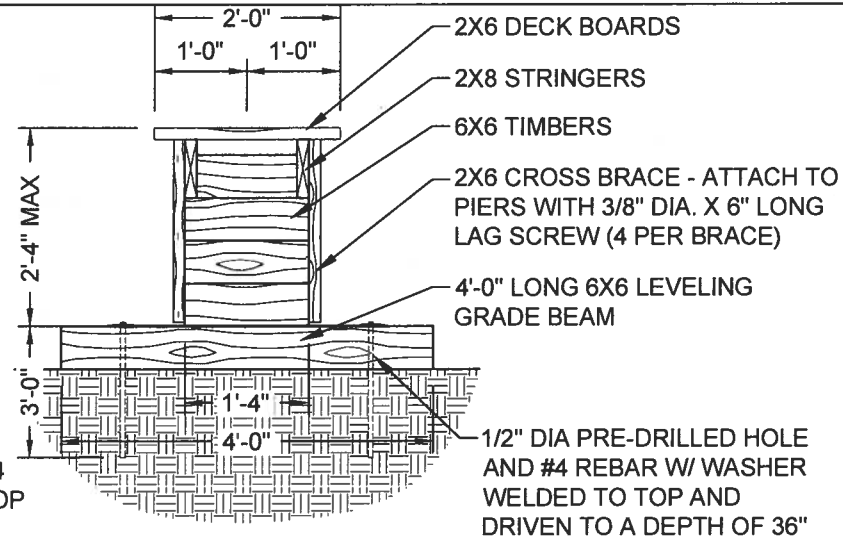
CITY OF DULUTH PROJECT NO. 1224

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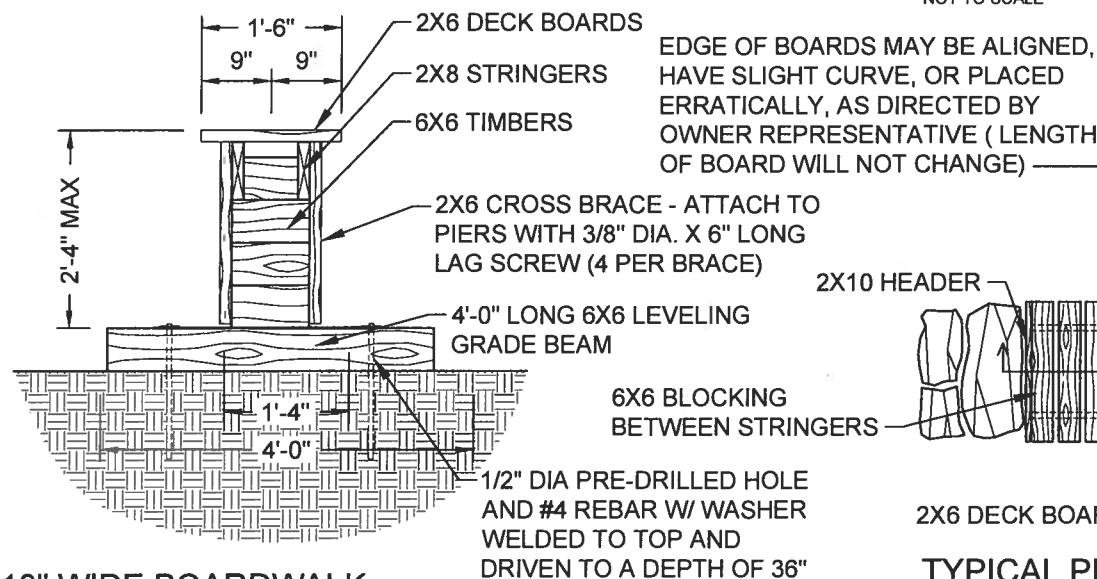
SHEET NO. 12 OF 43



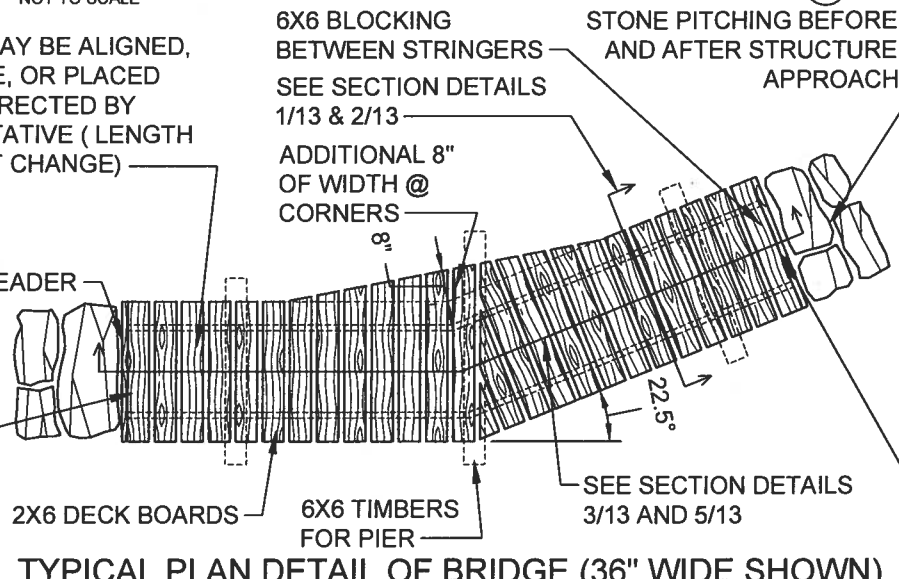
36" WIDE BOARDWALK
NOT TO SCALE



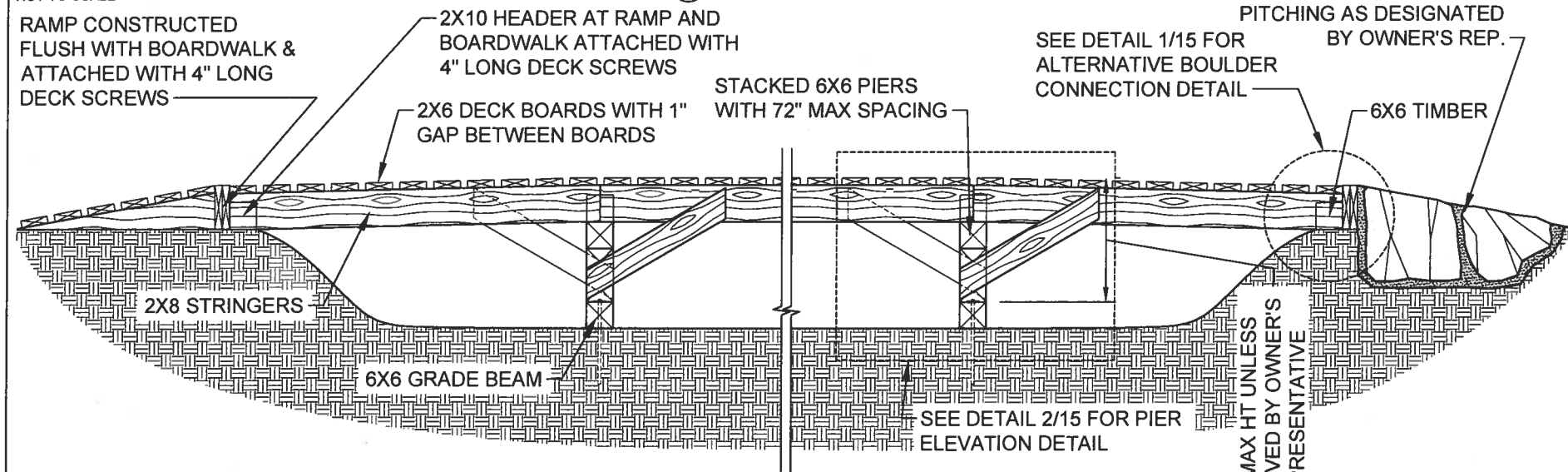
24" WIDE BOARDWALK
NOT TO SCALE



18" WIDE BOARDWALK
NOT TO SCALE



TYPICAL PLAN DETAIL OF BRIDGE (36" WIDE SHOWN)
NOT TO SCALE



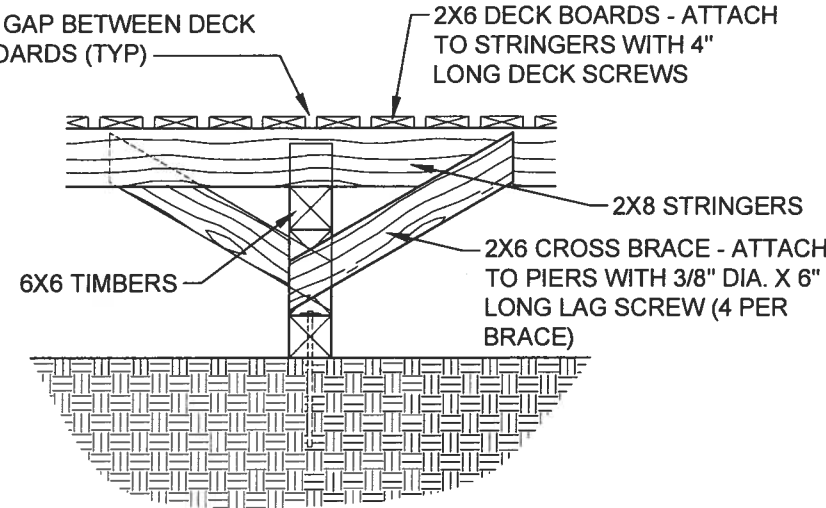
TYPICAL ELEVATION DETAIL FOR BOARDWALK (WET AREA CROSSINGS)
NOT TO SCALE

DETAIL NOTES:

1. LUMBER SHALL BE ROUGH SAWN RED PINE #2 OR APPROVED EQUAL, SIZED TO THE FULL DIMENSIONS SHOWN ON THE PLANS UNLESS NOTED OTHERWISE. ALL LUMBER SHALL BE ROT-RESISTANT TREATED ACCORDING TO THE OPTIONS INDICATED IN THE SPECIFICATIONS.
2. ROT-RESISTANT TREATMENTS OTHER THAN THOSE LISTED MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO BIDDING.
3. LEVELING GRADE BEAMS SHALL BE SHIMMED AS NECESSARY TO MEET DESIRED PITCH OF STRUCTURE
4. PRESERVE LUMBER IN ACCORDANCE WITH THE SPECIFICATIONS.
5. SELECT FASTENERS AND HARDWARE IN ACCORDANCE WITH THE SPECIFICATIONS
6. SEE SPECIFICATIONS FOR FINISHED TRAIL CONSTRUCTION DETAILS.
7. SEE SPECIFICATIONS FOR UNIT DEFINITIONS AND TREAD CONSTRUCTION DETAIL DRAWINGS.
8. IN INSTANCES WHERE SITE CONDITIONS PRECLUDE DEVELOPMENT OF THE TRAIL FOLLOWING THE PROPOSED ALIGNMENT, THE TRAIL WILL BE REROUTED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
9. SIZES, LENGTHS AND EXTENT OF ALL BOARDWALKS, ROCK HARDENED TREAD, BRIDGES AND BERMS TO BE FIELD FIT AT TIME OF CONSTRUCTION.
10. BOARDWALK & BRIDGE CONSTRUCTION LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE AT THE TIME OF CONSTRUCTION.
9. ALL DISTURBED AREAS NOT PART OF ACTIVE TREAD TO BE SEED AND MULCHED WITHIN 7 DAYS OF NOT BEING WORKED. SEE (SWPPP) STORM WATER POLLUTION PREVENTION PLAN FOR DETAILS.
10. CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
10. NO EXCAVATION OR FILL PERMITTED IN WET AREAS. WET AREAS WILL BE MARKED IN THE FIELD BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED WET AREAS.
11. WOOD RAMPS OR STONE PITCHING MAY REQUIRED BEFORE AND AFTER BRIDGES AND BOARDWALKS. APPLICATION WILL BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE AT THE TIME OF CONSTRUCTION. PAYMENT FOR RAMPS WILL BE ADDED TO THE TOTAL LENGTH OF THE BOARDWALK AND PAYMENT FOR STONE PITCHING WILL BE PER THE UNIT BID PRICE OF ROCK ARMORING.

2X10 HEADER - ATTACH TO STRINGERS WITH 4" LONG DECK SCREW - ATTACH TO BLOCKING WITH 3/8" DIA X 4" LONG LAG SCREW

1" GAP BETWEEN DECK BOARDS (TYP) 2X6 DECK BOARDS - ATTACH TO STRINGERS WITH 4" LONG DECK SCREWS



TYPICAL ELEVATION @ PIER LOCATION
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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE 1
DULUTH, MINNESOTA

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JAMES M. SACHSBERG
LANDSCAPE ARCHITECT
45577
REG. NO.

WOOD - TRAIL FEATURE DETAILS

1. LUMBER SHALL BE ROUGH SAWN RED PINE #2 OR APPROVED EQUAL, SIZED TO THE FULL DIMENSIONS SHOWN ON THE PLANS UNLESS NOTED OTHERWISE. ALL LUMBER SHALL BE ROT-RESISTANT TREATED ACCORDING TO THE OPTIONS INDICATED IN THE SPECIFICATIONS.
2. ROT-RESISTANT TREATMENTS OTHER THAN THOSE LISTED MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO BIDDING.
3. LEVELING GRADE BEAMS SHALL BE SHIMMED AS NECESSARY TO MEET DESIRED PITCH OF STRUCTURE
4. PRESERVE LUMBER IN ACCORDANCE WITH THE SPECIFICATIONS.
5. SELECT FASTENERS AND HARDWARE IN ACCORDANCE WITH THE SPECIFICATIONS
6. SEE SPECIFICATIONS FOR FINISHED TRAIL CONSTRUCTION DETAILS.
7. SEE SPECIFICATIONS FOR UNIT DEFINITIONS AND TREAD CONSTRUCTION DETAIL DRAWINGS.
8. IN INSTANCES WHERE SITE CONDITIONS PRECLUDE DEVELOPMENT OF THE TRAIL FOLLOWING THE PROPOSED ALIGNMENT, THE TRAIL WILL BE REROUTED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
9. SIZES, LENGTHS AND EXTENT OF ALL BOARDWALKS, ROCK HARDENED TREAD, BRIDGES AND BERMS TO BE FIELD FIT AT TIME OF CONSTRUCTION.
10. BOARDWALK & BRIDGE CONSTRUCTION LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE AT THE TIME OF CONSTRUCTION.
9. ALL DISTURBED AREAS NOT PART OF ACTIVE TREAD TO BE SEEDED AND MULCHED WITHIN 7 DAYS OF NOT BEING WORKED. SEE (SWPPP) STORM WATER POLLUTION PREVENTION PLAN FOR DETAILS.
10. CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
10. NO EXCAVATION OR FILL PERMITTED IN WET AREAS. WET AREAS WILL BE MARKED IN THE FIELD BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED WET AREAS.
11. WOOD RAMPS OR STONE PITCHING MAY REQUIRED BEFORE AND AFTER BRIDGES AND BOARDWALKS. APPLICATION WILL BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE AT THE TIME OF CONSTRUCTION. PAYMENT FOR RAMPS WILL BE ADDED TO THE TOTAL LENGTH OF THE BOARDWALK AND PAYMENT FOR STONE PITCHING WILL BE PER THE UNIT BID PRICE OF ROCK ARMORING.



NOT TO SCALE



NOT TO SCALE



NOT TO SCALE



DETAIL NOTES:

1. LUMBER SHALL BE ROUGH SAWN RED PINE #2 OR APPROVED EQUAL, SIZED TO THE FULL DIMENSIONS SHOWN ON THE PLANS UNLESS NOTED OTHERWISE. ALL LUMBER SHALL BE ROT-RESISTANT TREATED ACCORDING TO THE OPTIONS INDICATED IN THE SPECIFICATIONS.
2. ROT-RESISTANT TREATMENTS OTHER THAN THOSE LISTED MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO BIDDING.
3. LEVELING GRADE BEAMS SHALL BE SHIMMED AS NECESSARY TO MEET DESIRED PITCH OF STRUCTURE
4. PRESERVE LUMBER IN ACCORDANCE WITH THE SPECIFICATIONS.
5. SELECT FASTENERS AND HARDWARE IN ACCORDANCE WITH THE SPECIFICATIONS
6. SEE SPECIFICATIONS FOR FINISHED TRAIL CONSTRUCTION DETAILS.
7. SEE SPECIFICATIONS FOR UNIT DEFINITIONS AND TREAD CONSTRUCTION DETAIL DRAWINGS.
8. IN INSTANCES WHERE SITE CONDITIONS PRECLUDE DEVELOPMENT OF THE TRAIL FOLLOWING THE PROPOSED ALIGNMENT, THE TRAIL WILL BE REROUTED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
9. SIZES, LENGTHS AND EXTENT OF ALL BOARDWALKS, ROCK HARDENED TREAD, BRIDGES AND BERMS TO BE FIELD FIT AT TIME OF CONSTRUCTION.
10. BOARDWALK & BRIDGE CONSTRUCTION LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE OWNER'S REPRESENTATIVE AT THE TIME OF CONSTRUCTION.
9. ALL DISTURBED AREAS NOT PART OF ACTIVE TREAD TO BE SEEDED AND MULCHED WITHIN 7 DAYS OF NOT BEING WORKED. SEE (SWPPP) STORM WATER POLLUTION PREVENTION PLAN FOR DETAILS.
10. CUT BRUSH AND SLASH MUST BE DISPOSED IN AN UPLAND LOCATION AND MUST BE KEPT OUT OF STREAMS, GULLIES, SWALES, WETLANDS, AND LOW AREAS. SEE SPECIFICATIONS FOR DETAILS.
10. NO EXCAVATION OR FILL PERMITTED IN WET AREAS. WET AREAS WILL BE MARKED IN THE FIELD BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSULT WITH THE OWNER PRIOR TO DOING ANY WORK WITHIN SUSPECTED WET AREAS.

CUSTOM CUT STRINGERS AND END DECK BOARD TO FIT ADJACENT TO EXISTING BOULDER WITH MINIMUM GAP

EXISTING LARGE BOULDER

STACKED 6X6 PIER

BOARDWALK CROSSING ABUTTING TO BOULDER

NOT TO SCALE

1
15

ATTACH BEAM TO MID POST AND SLEEPERS WITH (2) 7" LONG x 3/8" DIA. LAG SCREWS - COUNTERBORE SO HEAD IS FLUSH WITH BEAM

12' MAX CONTINUOUS SPAN

PLAN VIEW

6X6 SLEEPER (24" LONG)

SINGLE TIMBER BEAM (8X4) OR PLANK (12X3)

12' MAX CONTINUOUS SPAN

GRADE

6X6 SLEEPER (24" LONG)

SEE TYPICAL CROSS SECTIONS

TYPICAL SIDE ELEVATION

ATTACH WITH 7" LONG RING-SHANKED SPIKES

12X3 PLANK

6X6 SLEEPER @ EACH END OF BEAM (24" LONG)

TYPICAL CROSS SECTION - 12" WIDE WOOD SKILLS PLANK

ATTACH WITH 7" LONG RING-SHANKED SPIKES

8X4 BEAM

6X6 SLEEPER @ EACH END OF BEAM (24" LONG)

TYPICAL CROSS SECTION - 8" WIDE WOOD SKILLS BEAM

WOOD SKILLS "BEAM" & "PLANK" DETAILS

NOT TO SCALE

2
15



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**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE 1**
DULUTH, MINNESOTA

PROJECT NO.: 12-039

DATE: MAY-7-2013

DRAWN BY: TTP

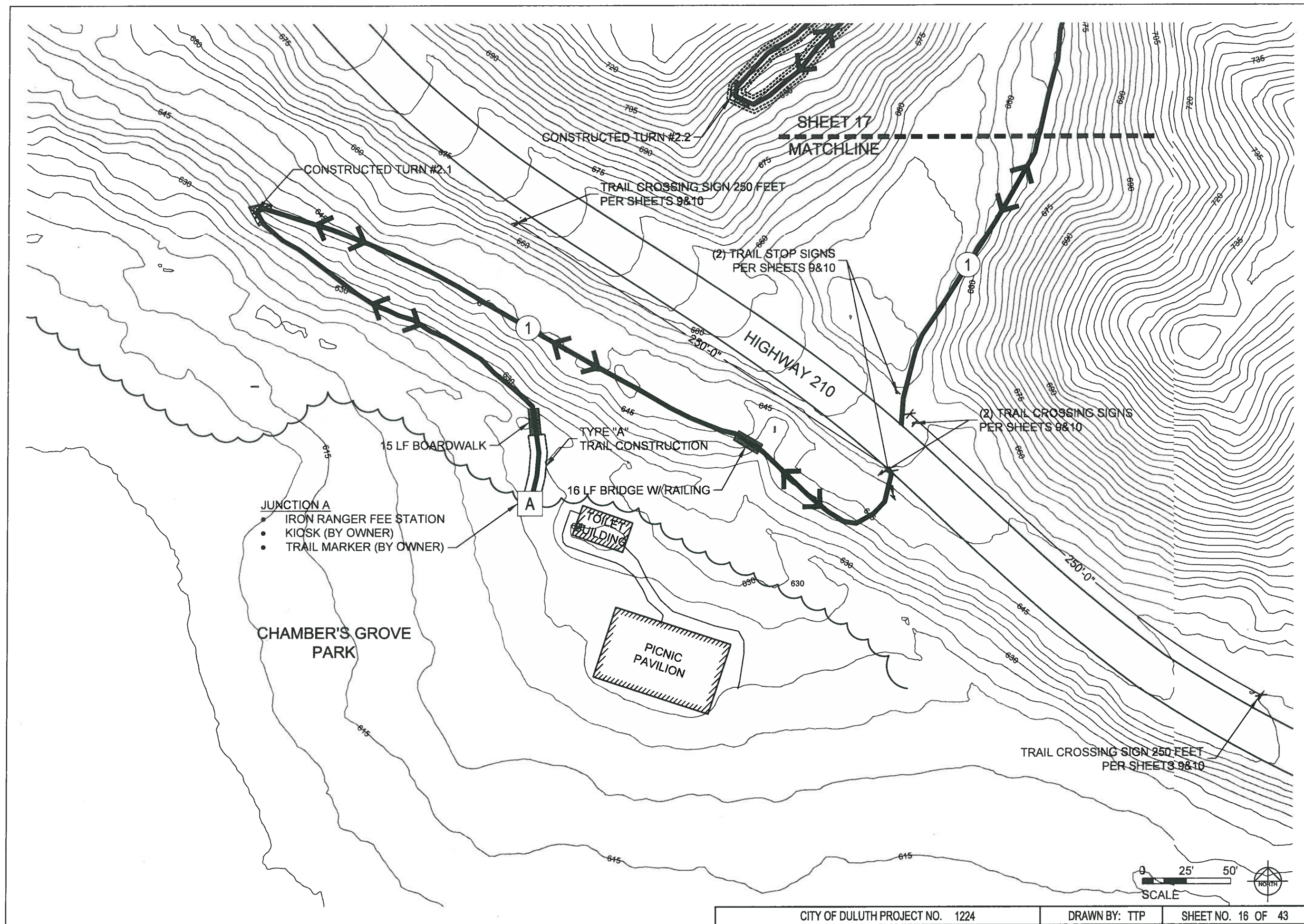
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LANDSCAPE ARCHITECT
45577 REG. NO.

**WOOD -
TRAIL
FEATURE
DETAILS**

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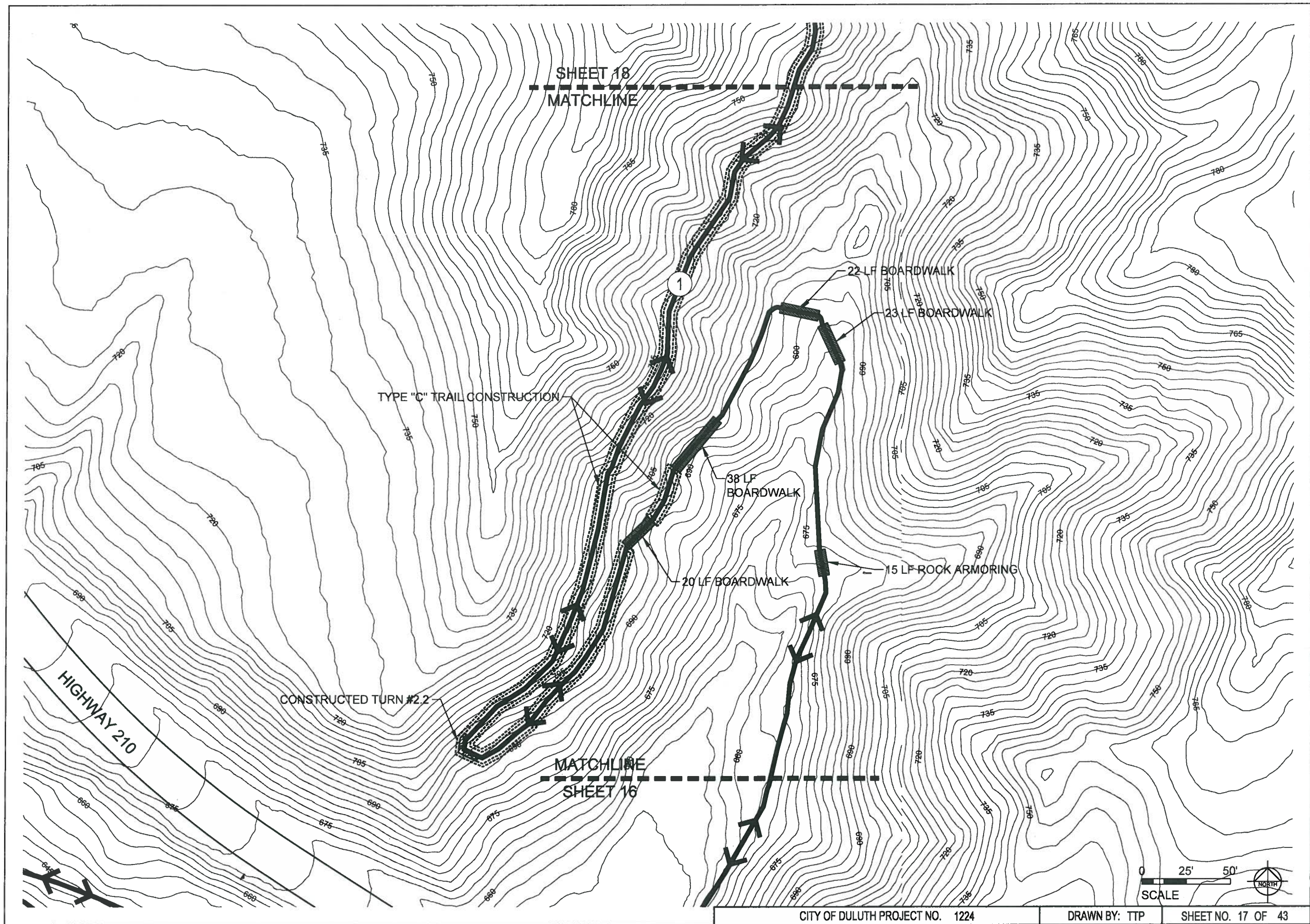
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HILL SIDE TRAIL



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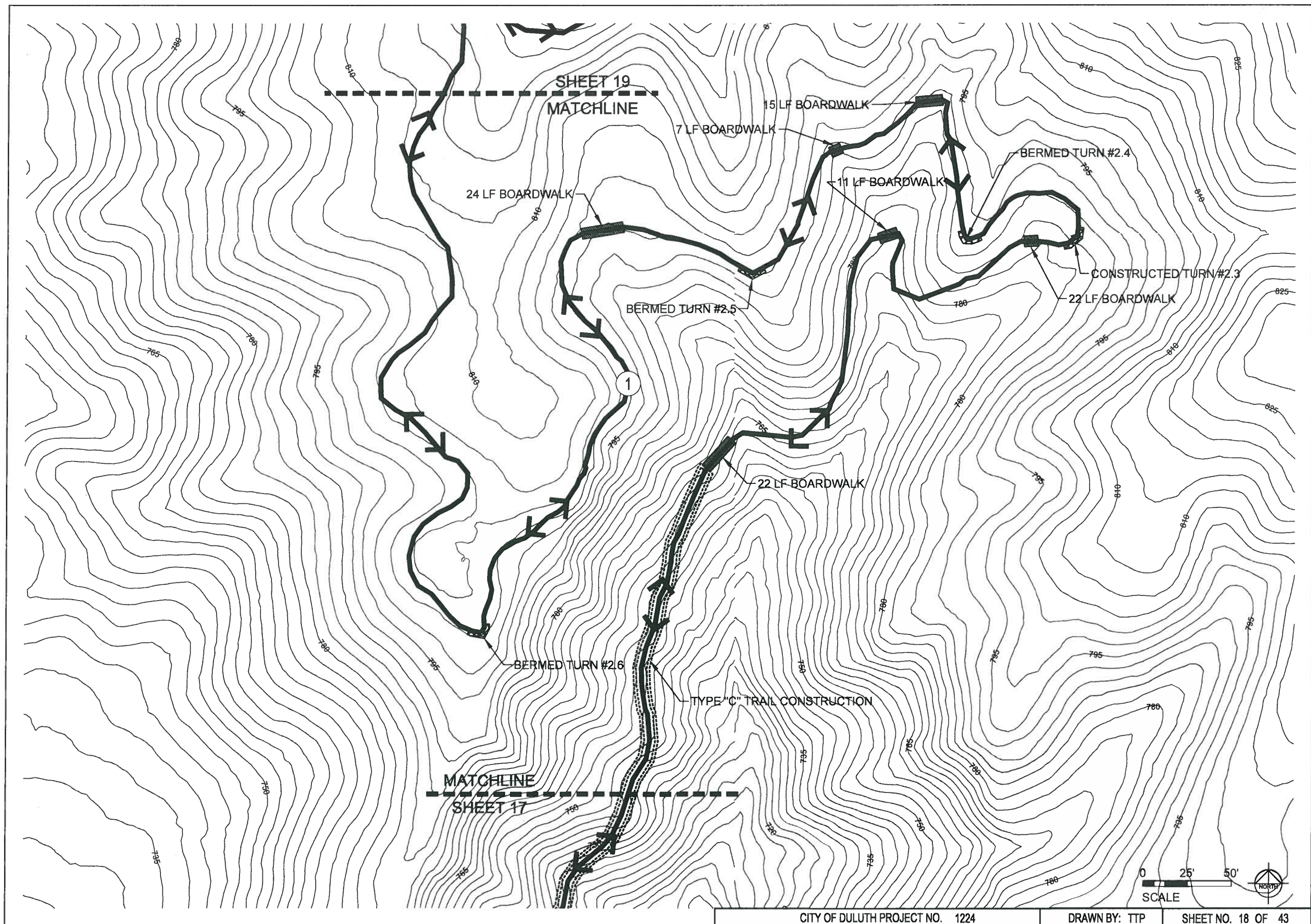
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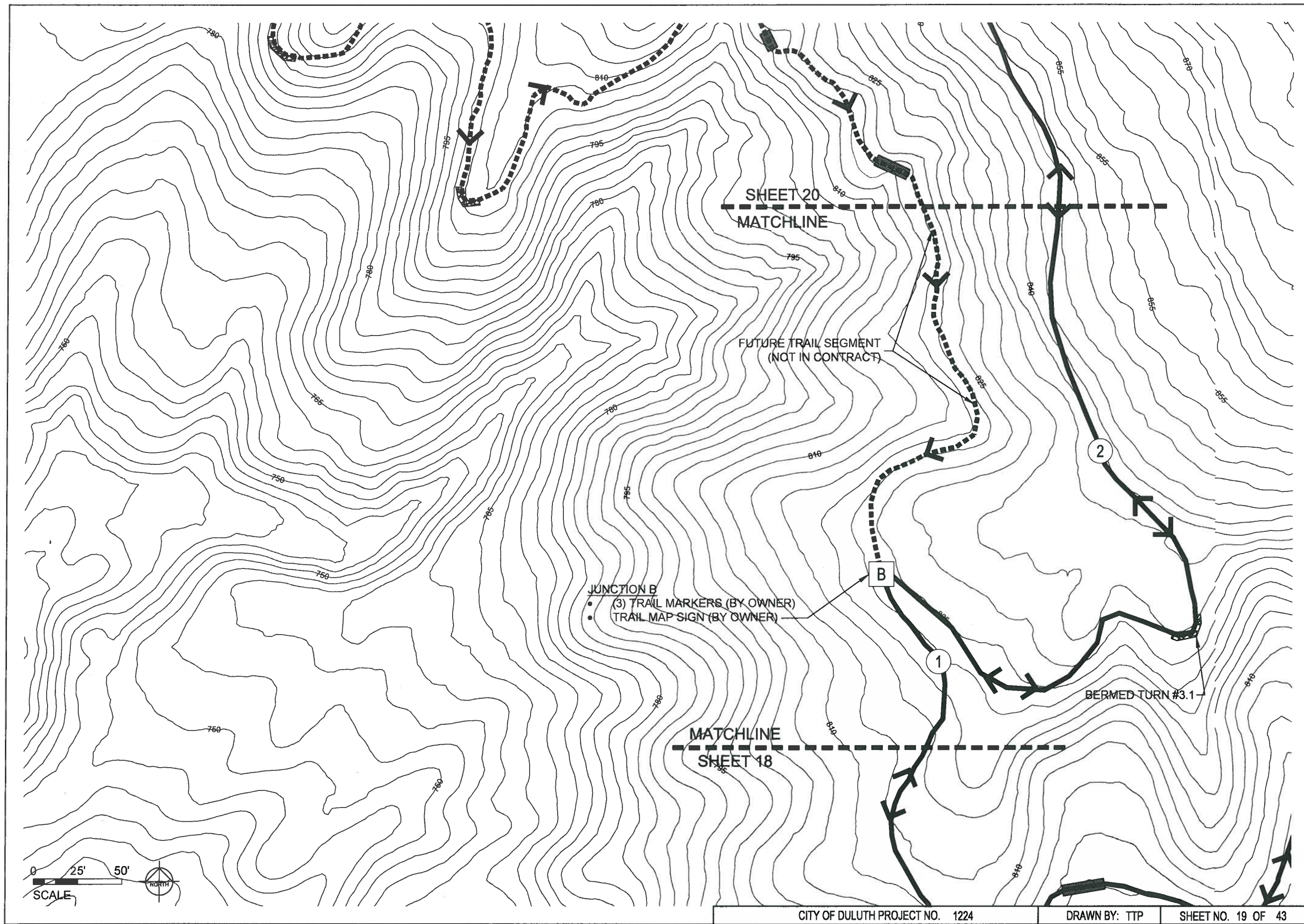
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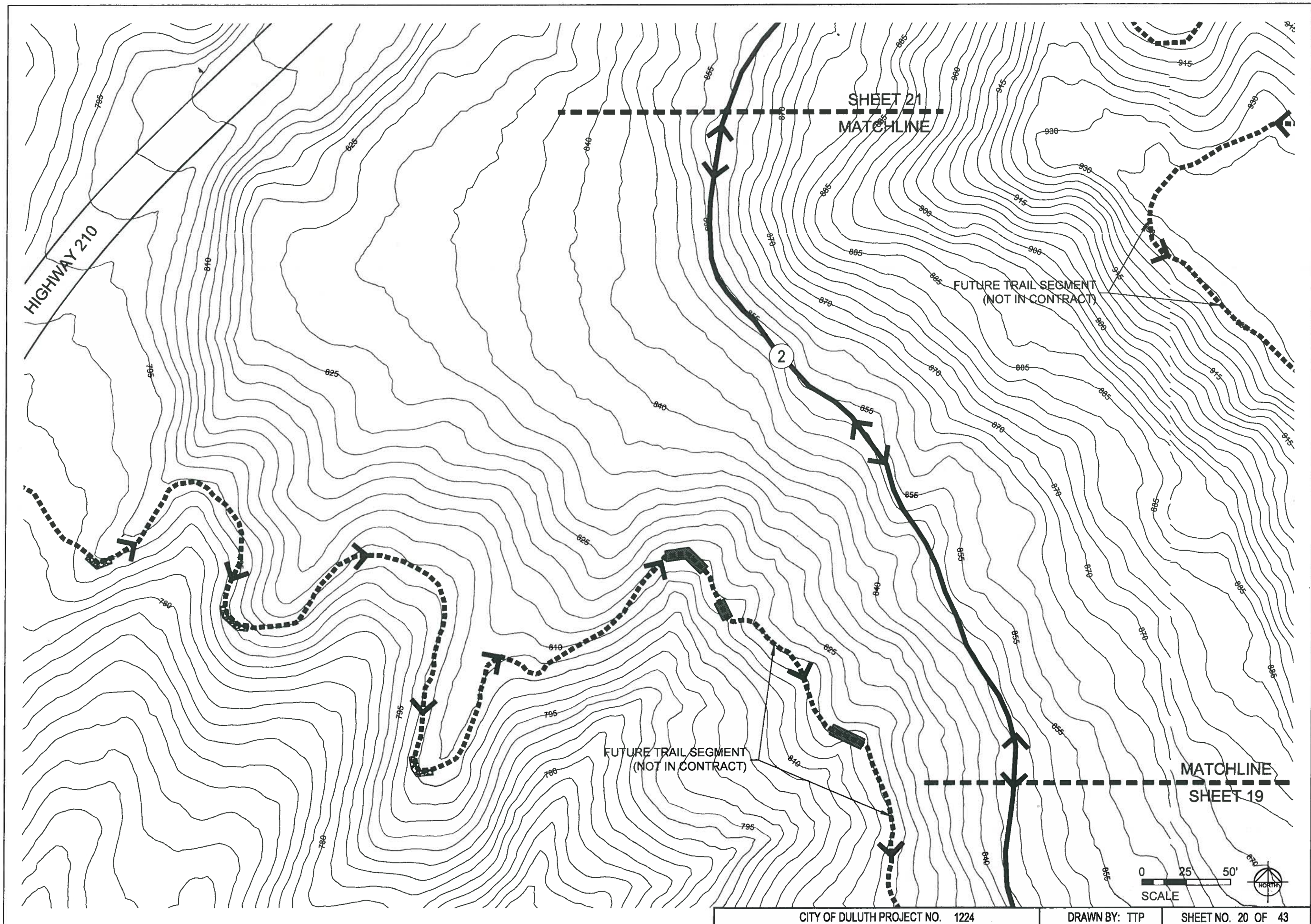
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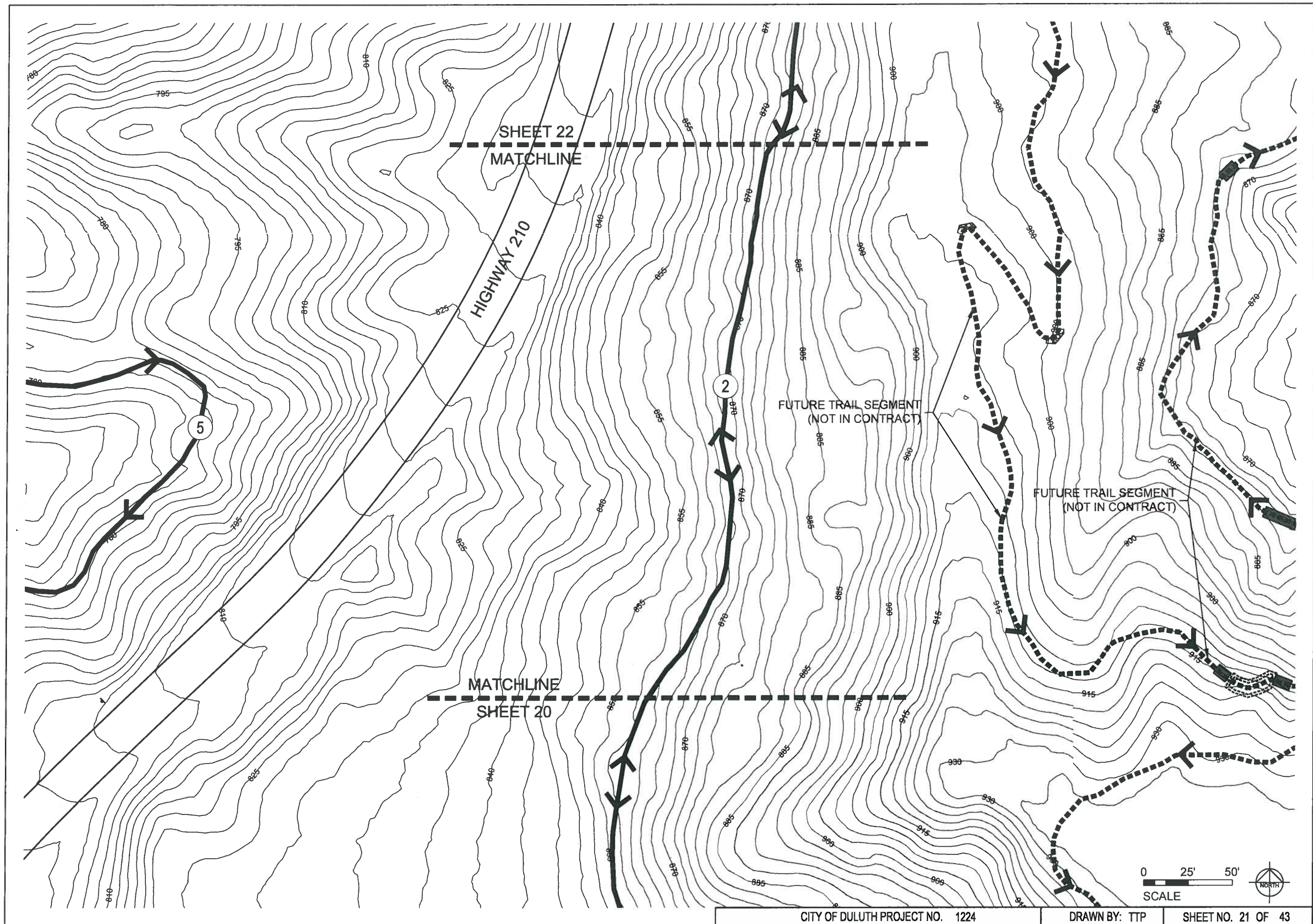
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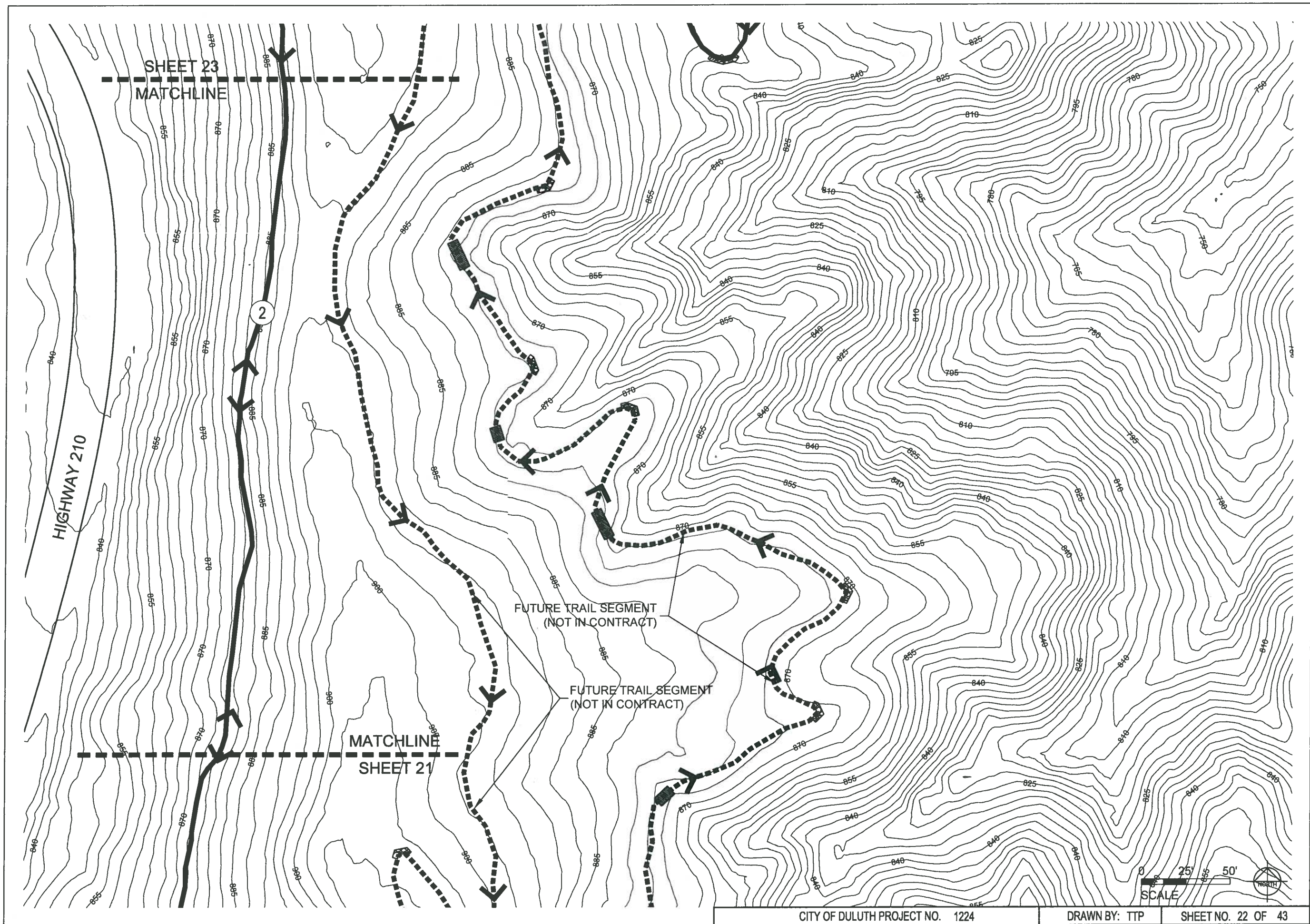
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TRAIL**

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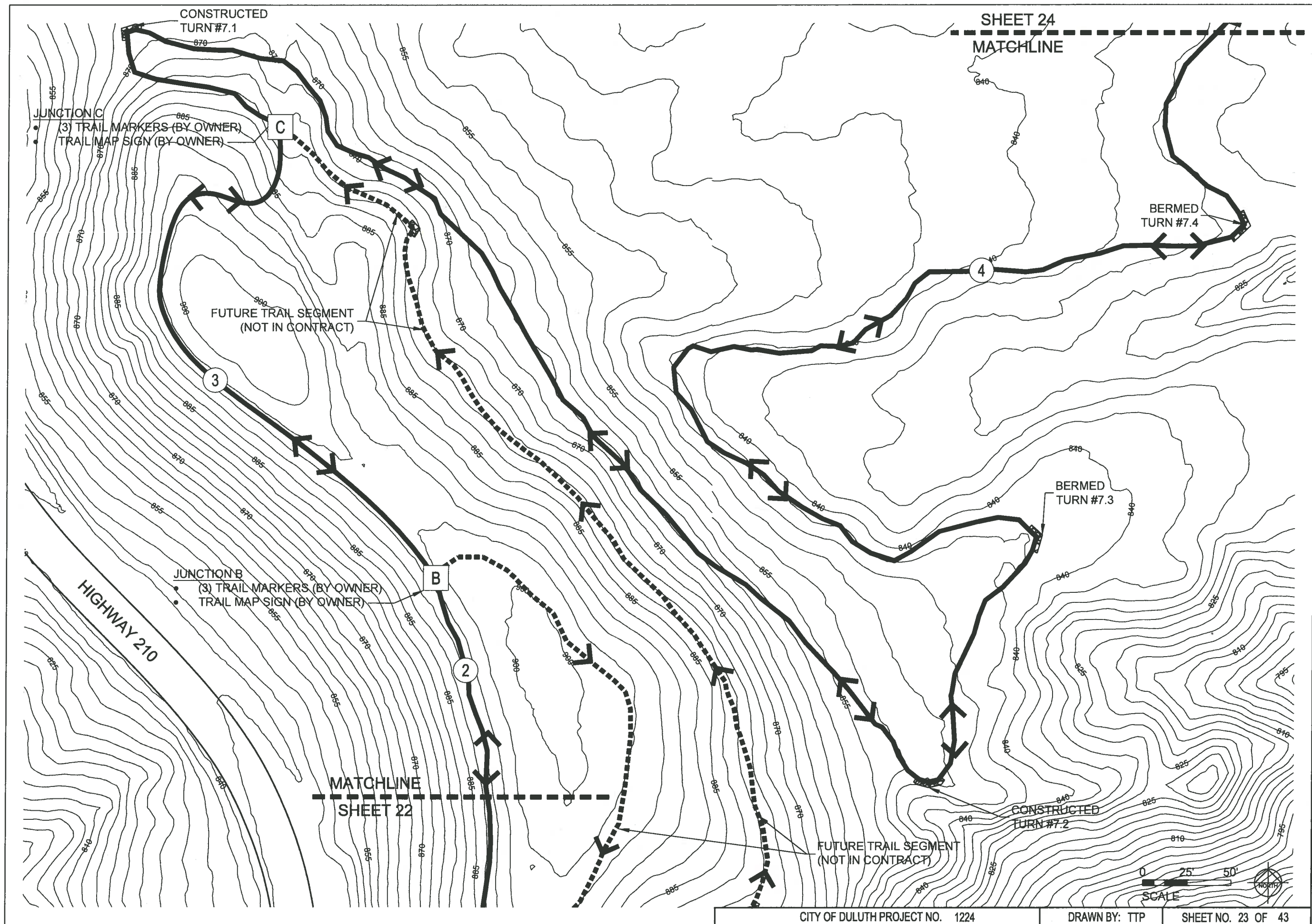
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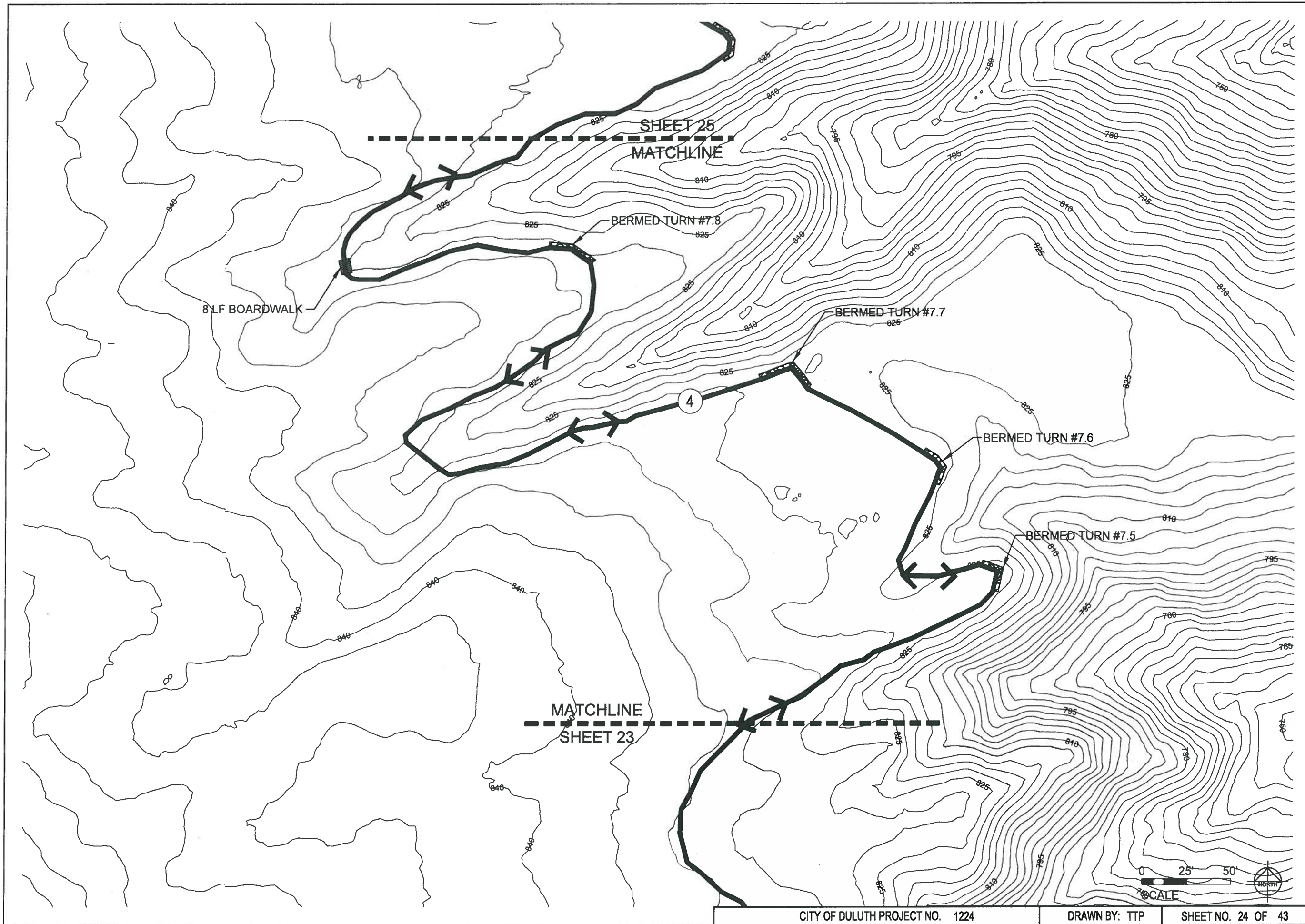
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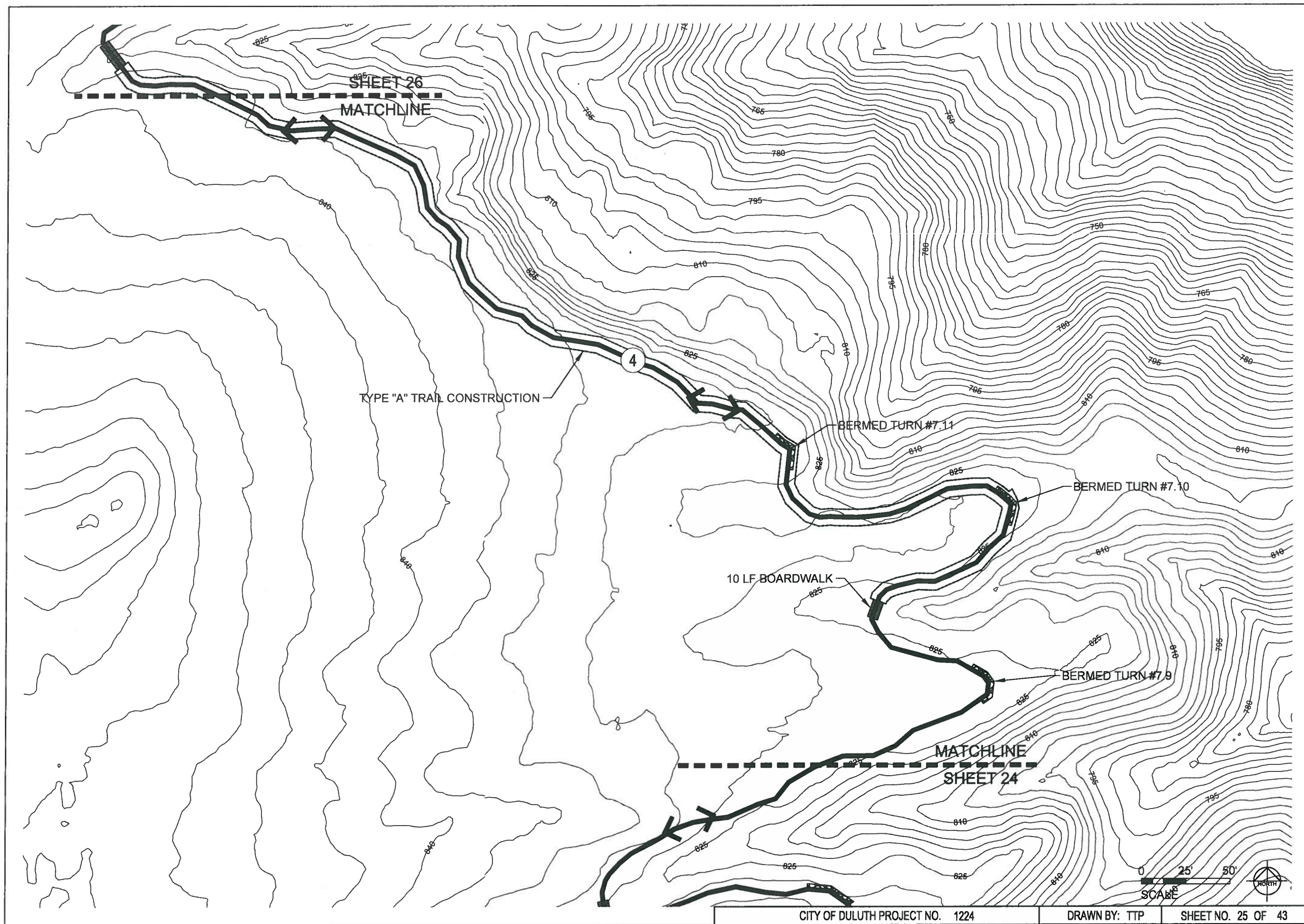
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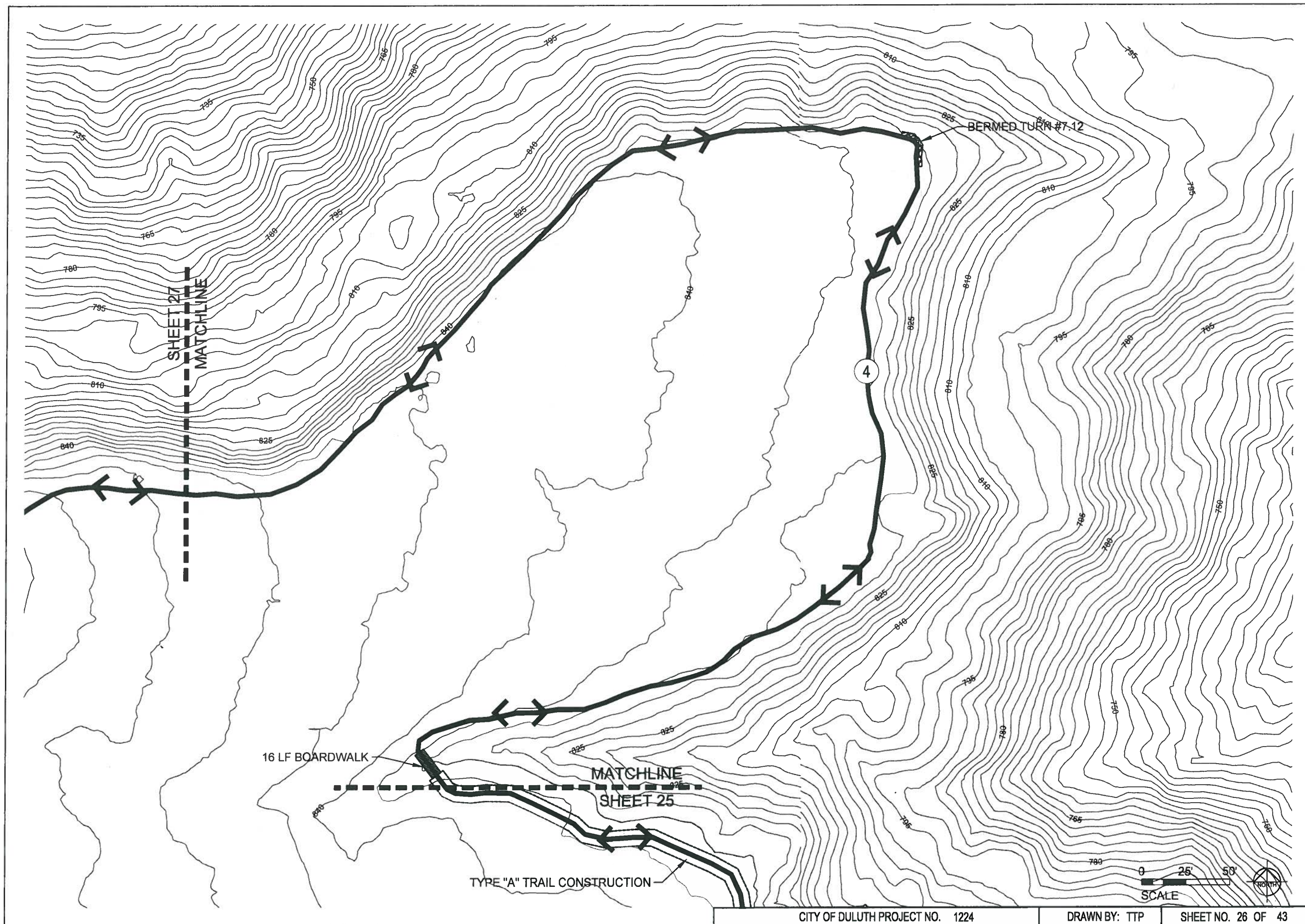
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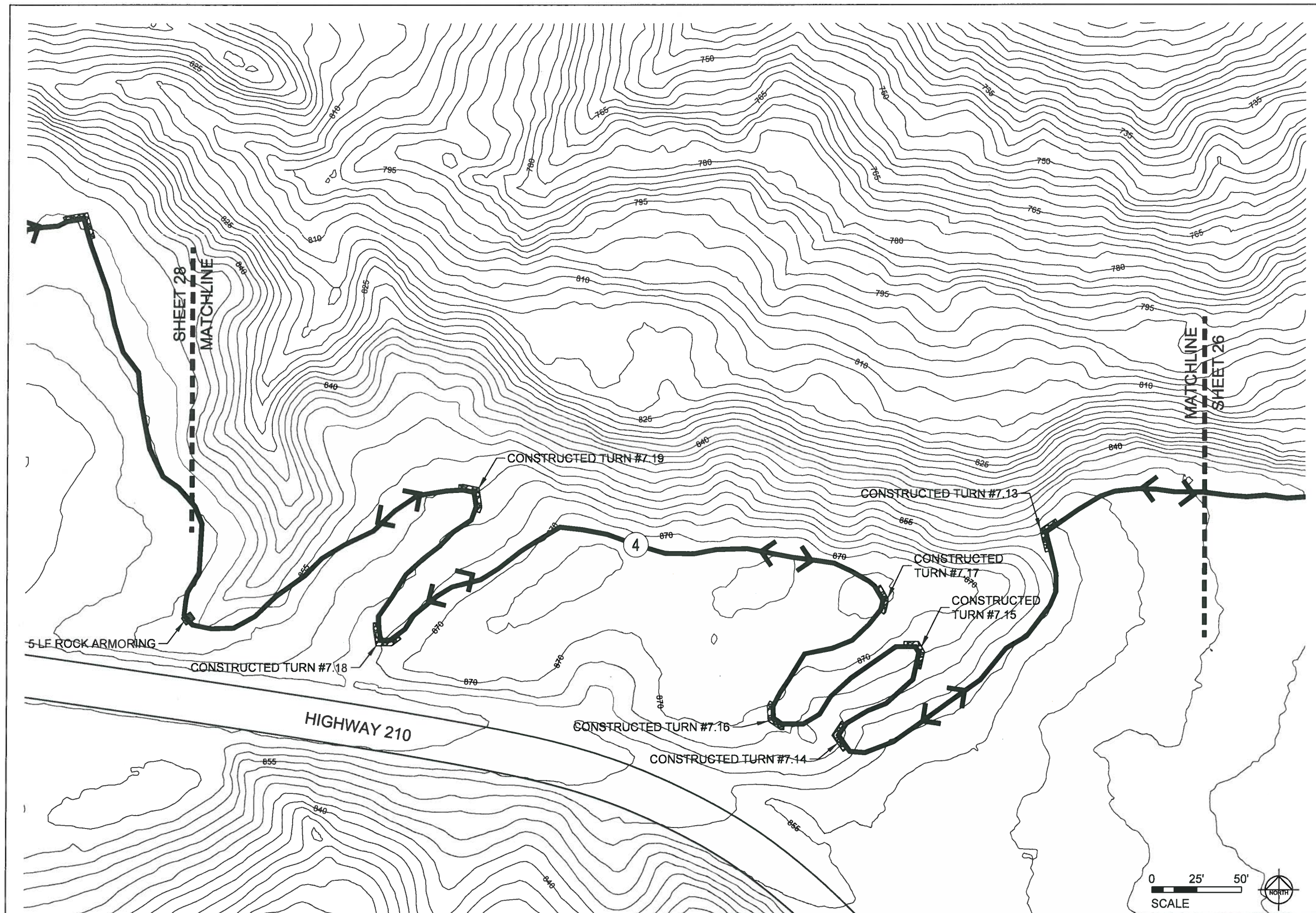
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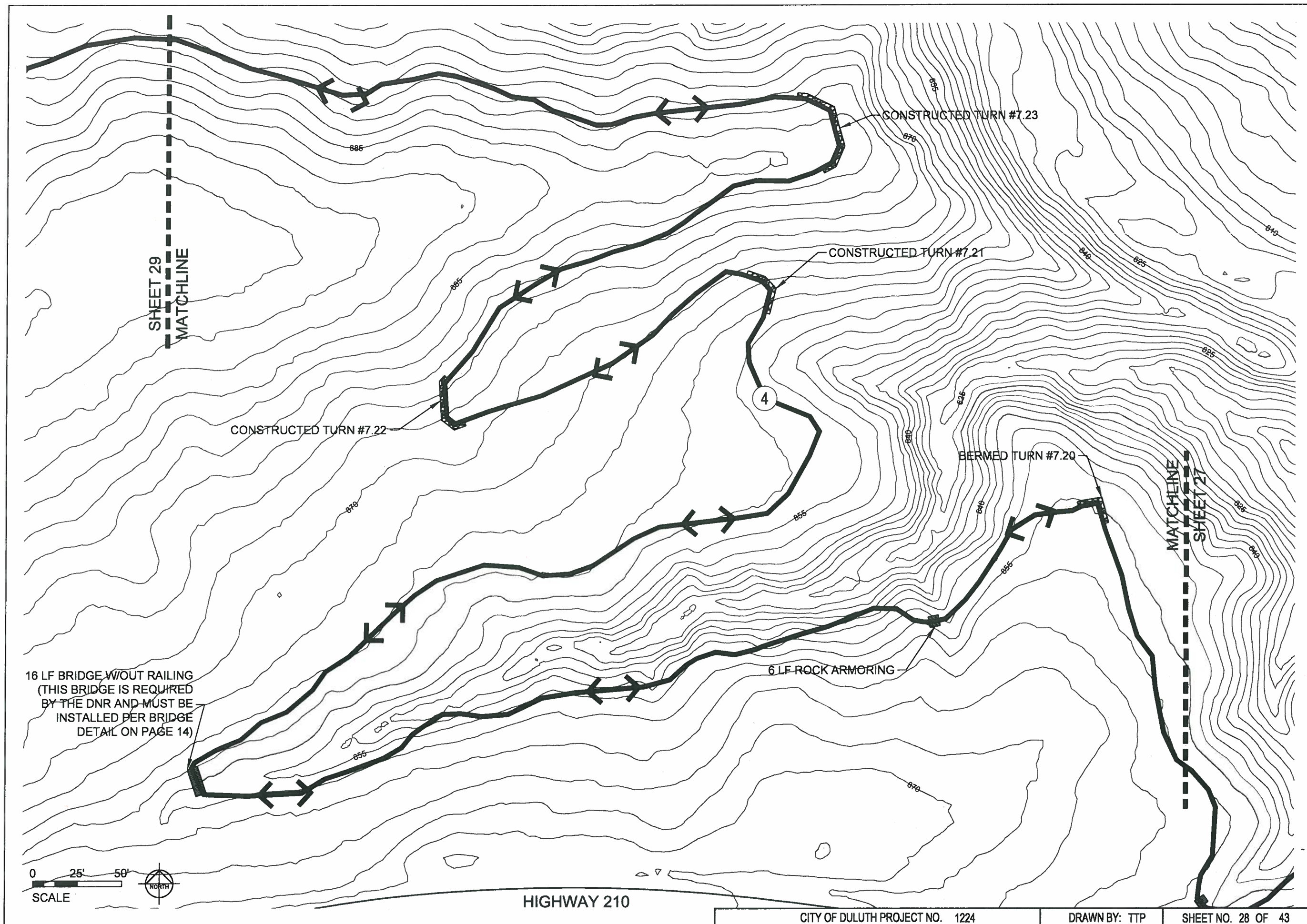
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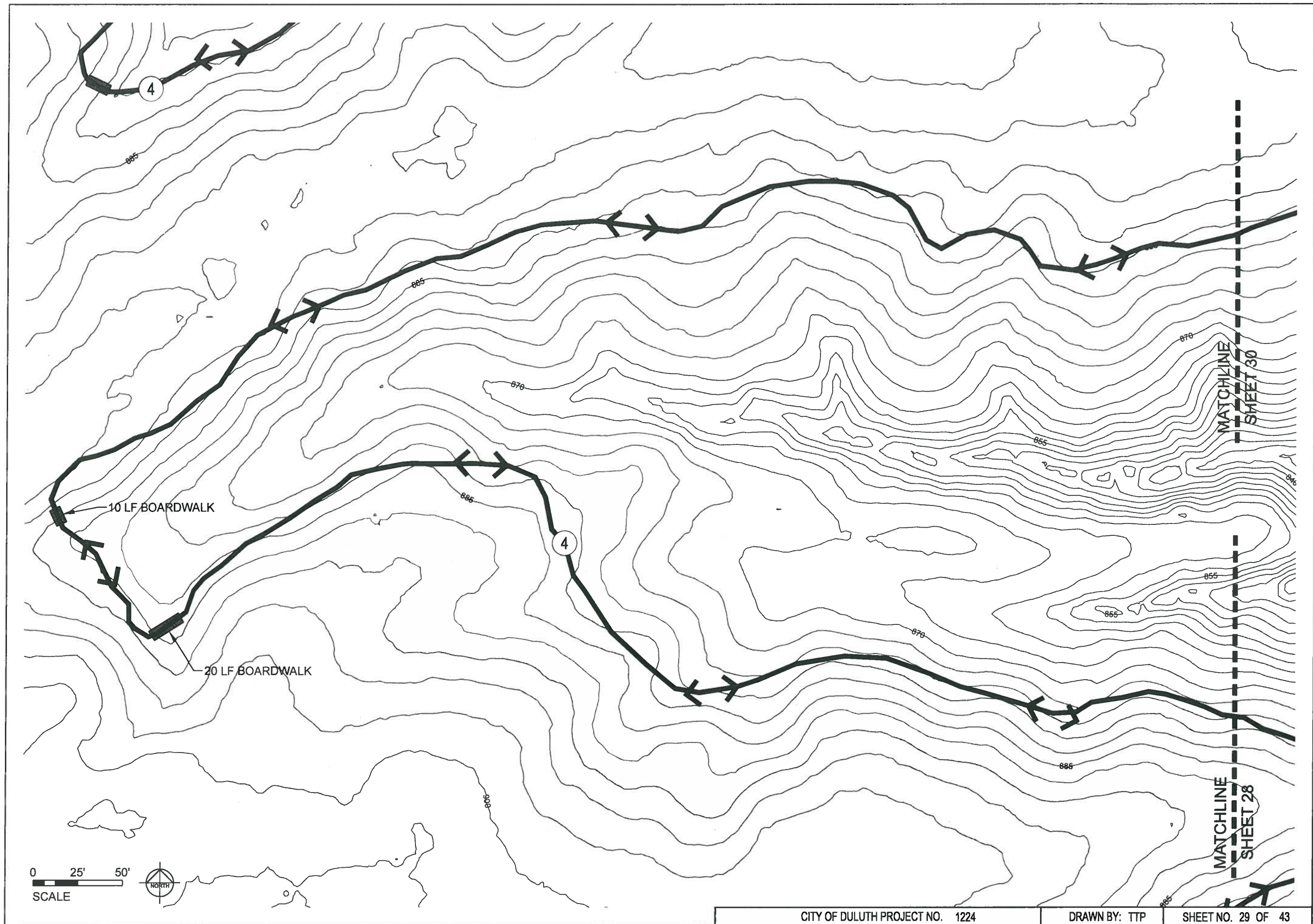
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**HILL SIDE
TRAIL**

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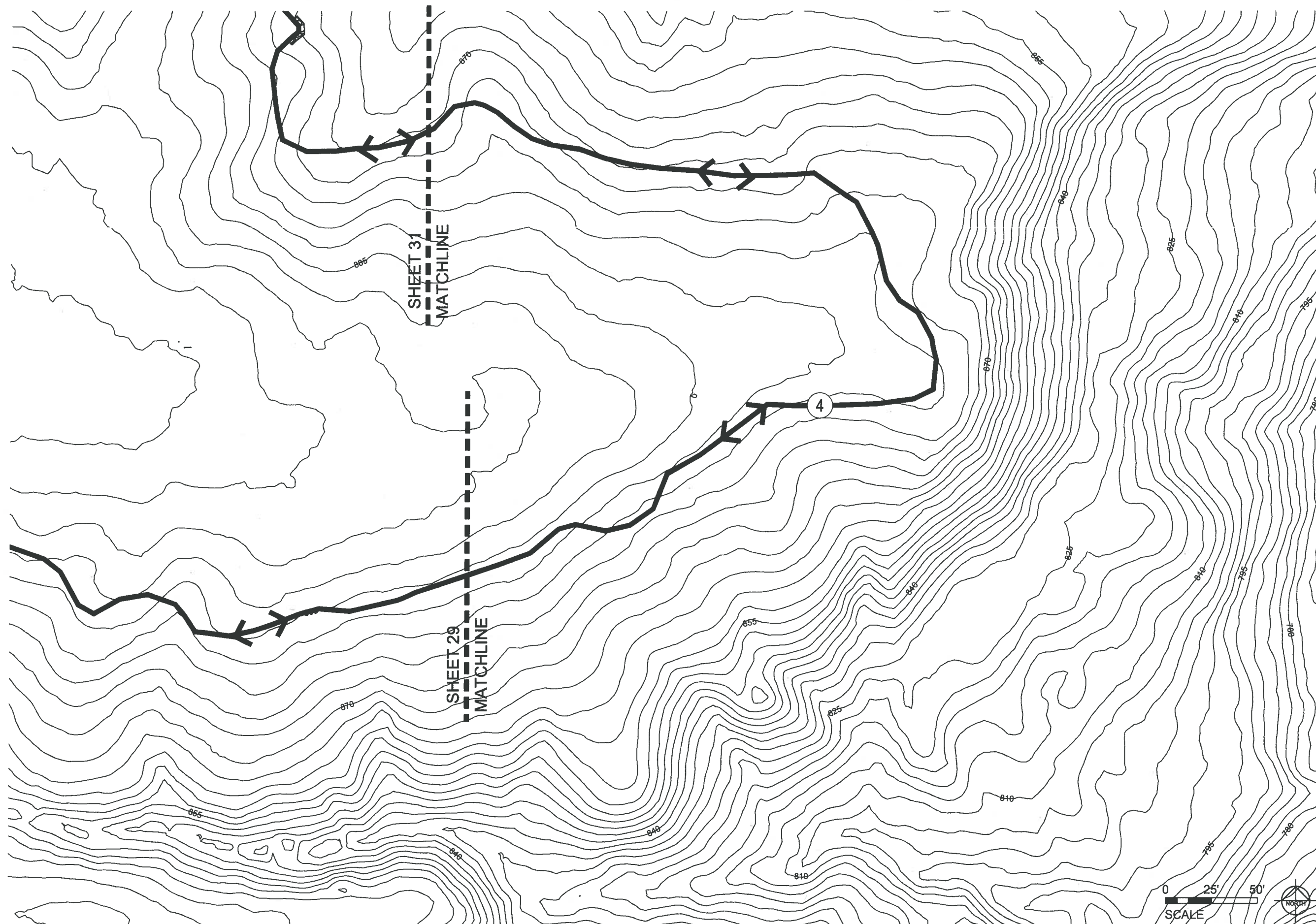
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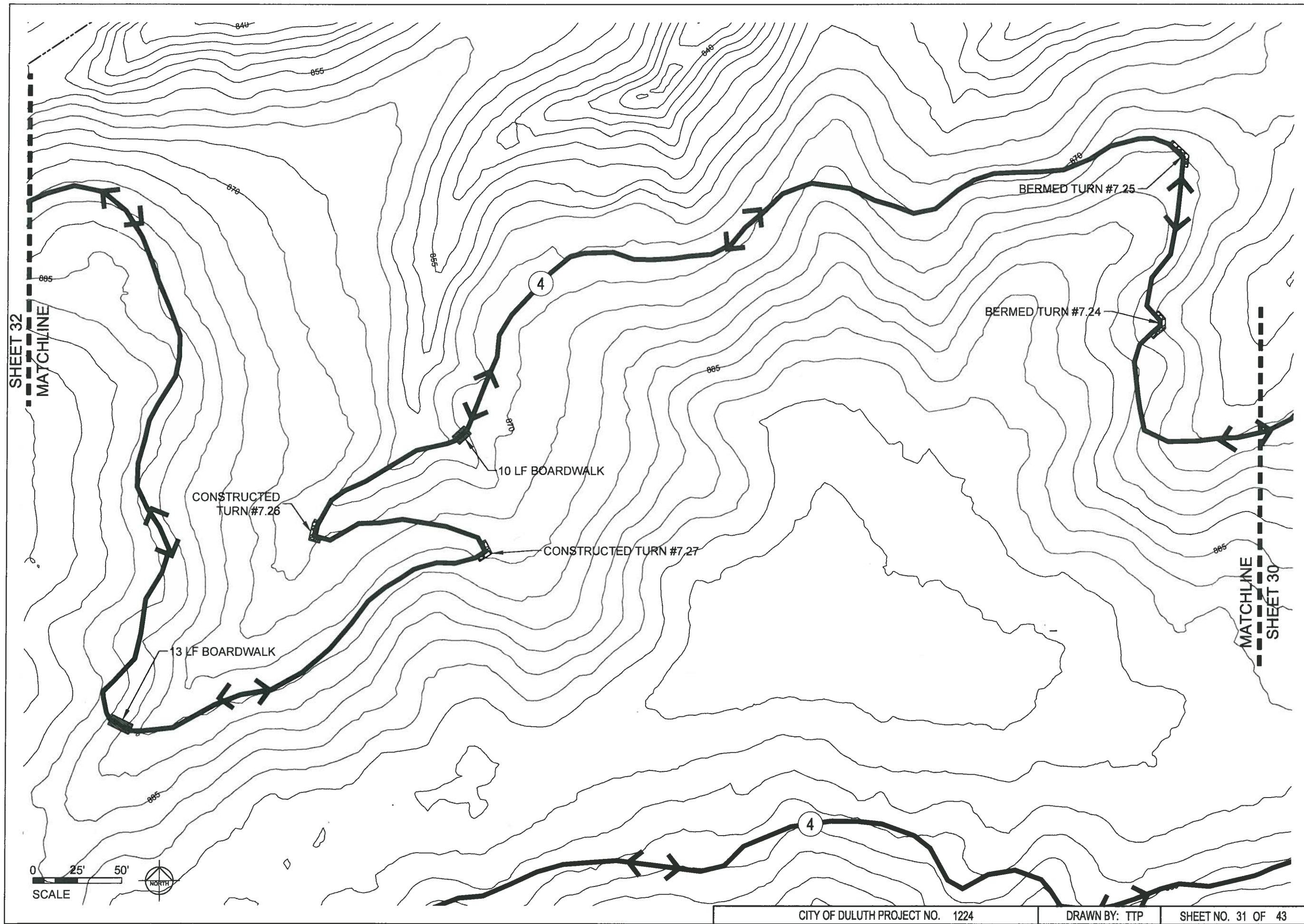
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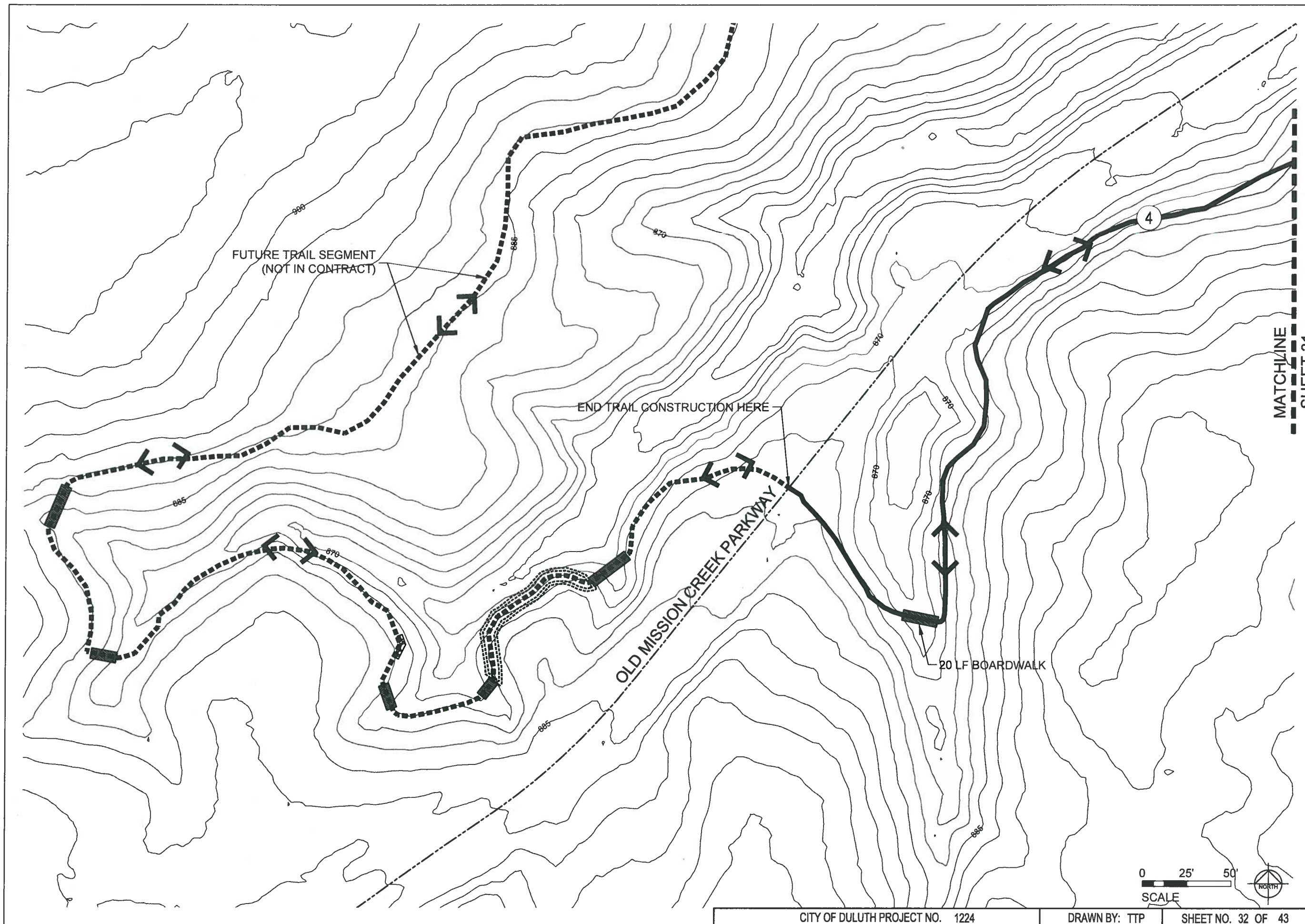
**DULUTH
TRAVERSE
TRAIL
MISSION CREEK
PHASE 1**
DULUTH, MINNESOTA

PROJECT NO.:	12-039
DATE:	MAY-7-2013
DRAWN BY:	TTP
REVISIONS:	

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JAMES M. SHOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**HILL SIDE
TRAIL**



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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE 1

DULUTH, MINNESOTA

PROJECT NO.: 12-039

DATE: MAY-7-2013

DRAWN BY: TTP

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LANDSCAPE ARCHITECT REG. NO.

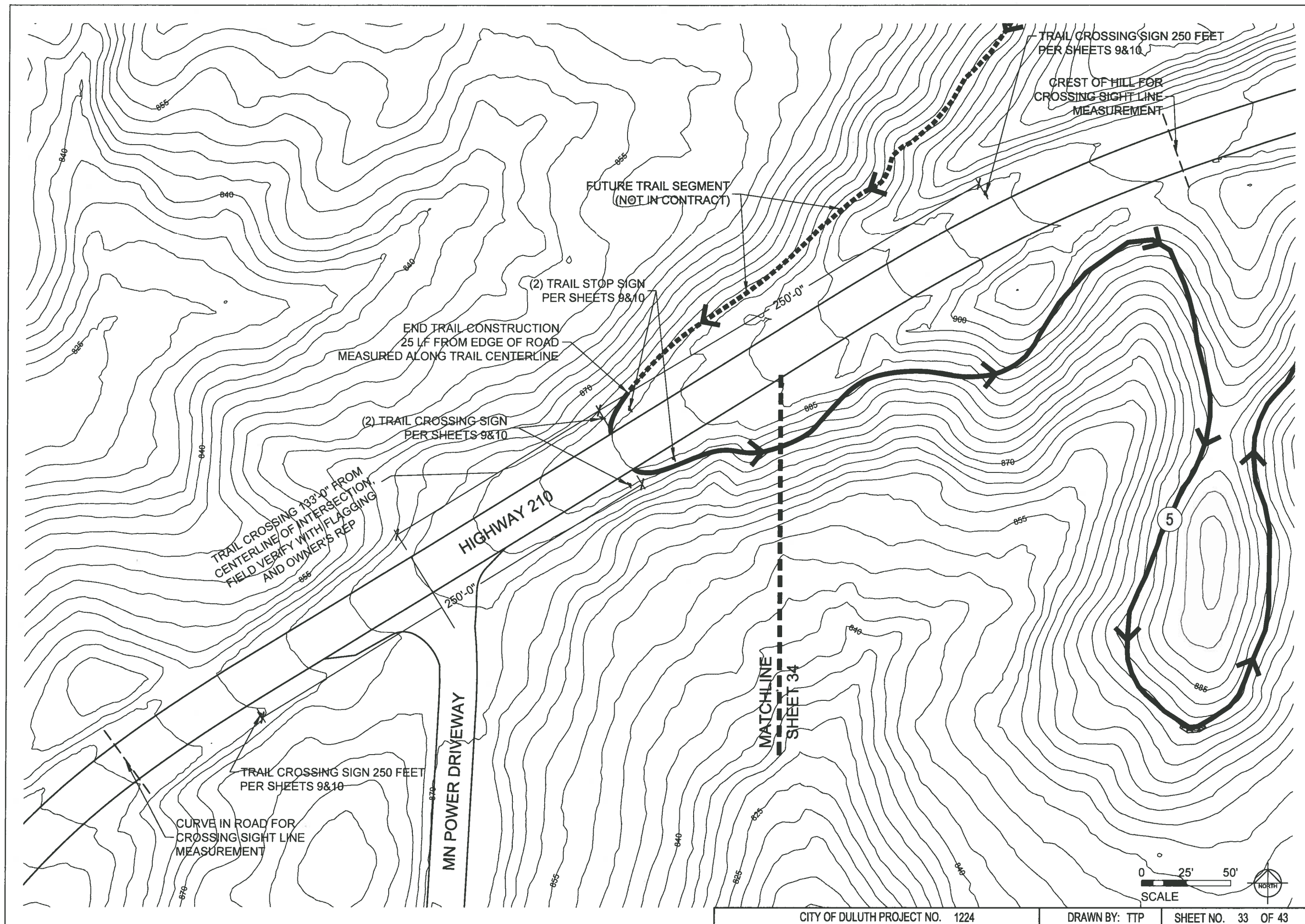
**HILL SIDE
TRAIL**

32

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 32 OF 43



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PHASE 1**
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. NO.

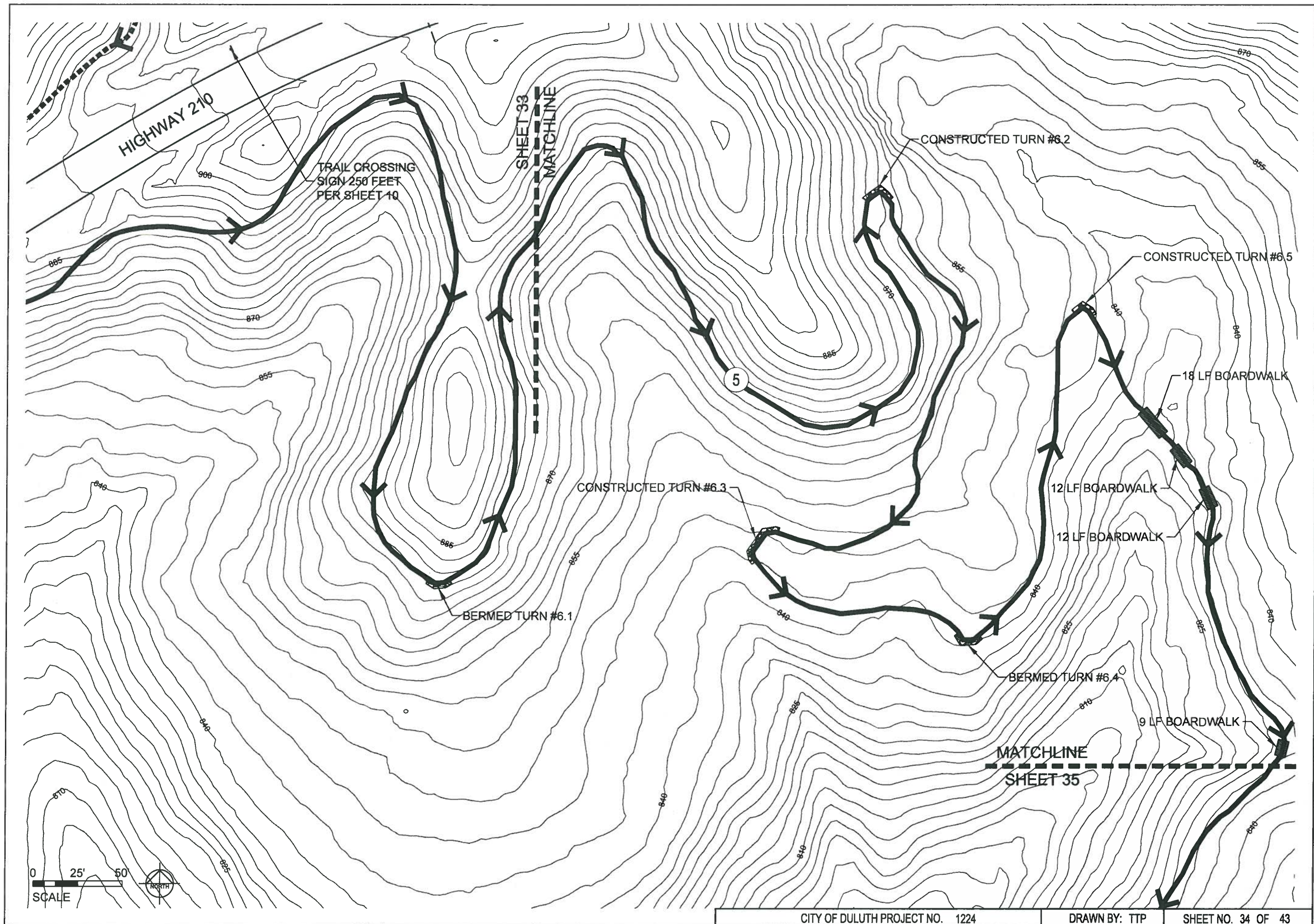
**RIVER SIDE
TRAIL**

33

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 33 OF 43



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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE 1

DULUTH, MINNESOTA

PROJECT NO.: 12-039

DATE: MAY-7-2013

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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT REG. NO.

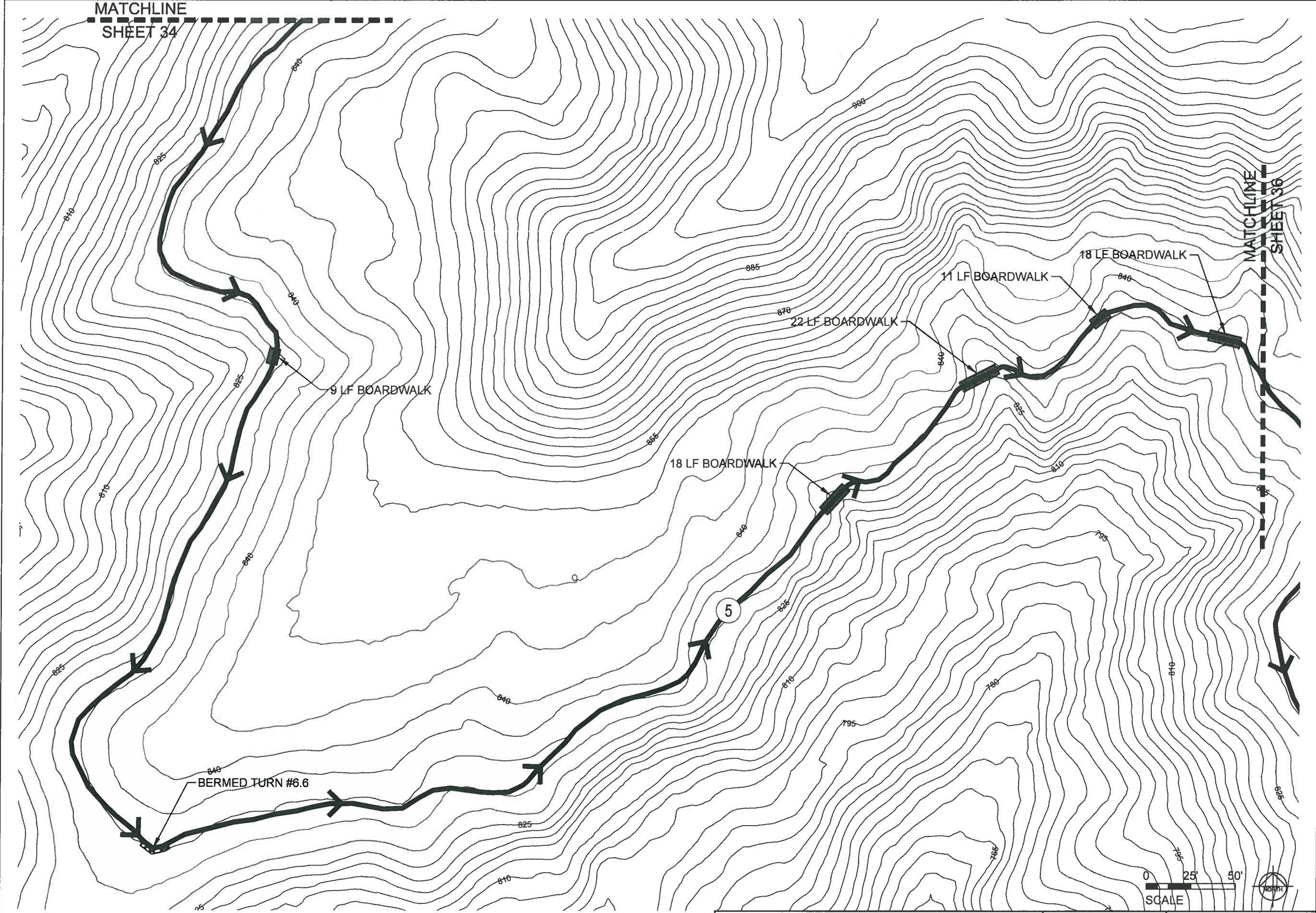
**RIVER SIDE
TRAIL**

34

CITY OF DULUTH PROJECT NO. 1224

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SHEET NO. 34 OF 43



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**DULUTH
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MISSION CREEK
PHASE 1**
DULUTH, MINNESOTA

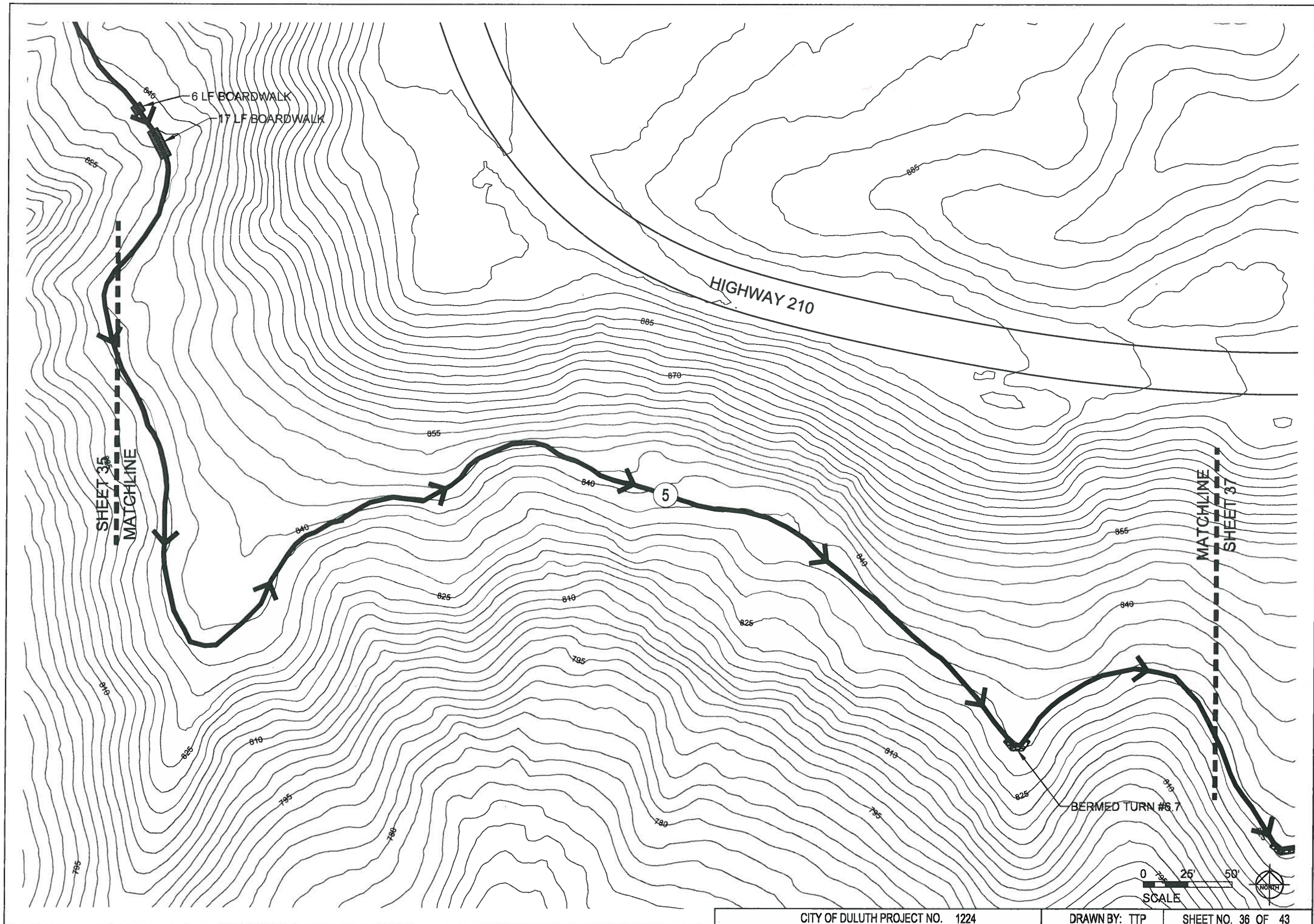
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LANDSCAPE ARCHITECT REG. NO.

**RIVER SIDE
TRAIL**

35



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**DULUTH
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PHASE 1**
DULUTH, MINNESOTA

PROJECT NO.: 12-039
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JAMES M. SHOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

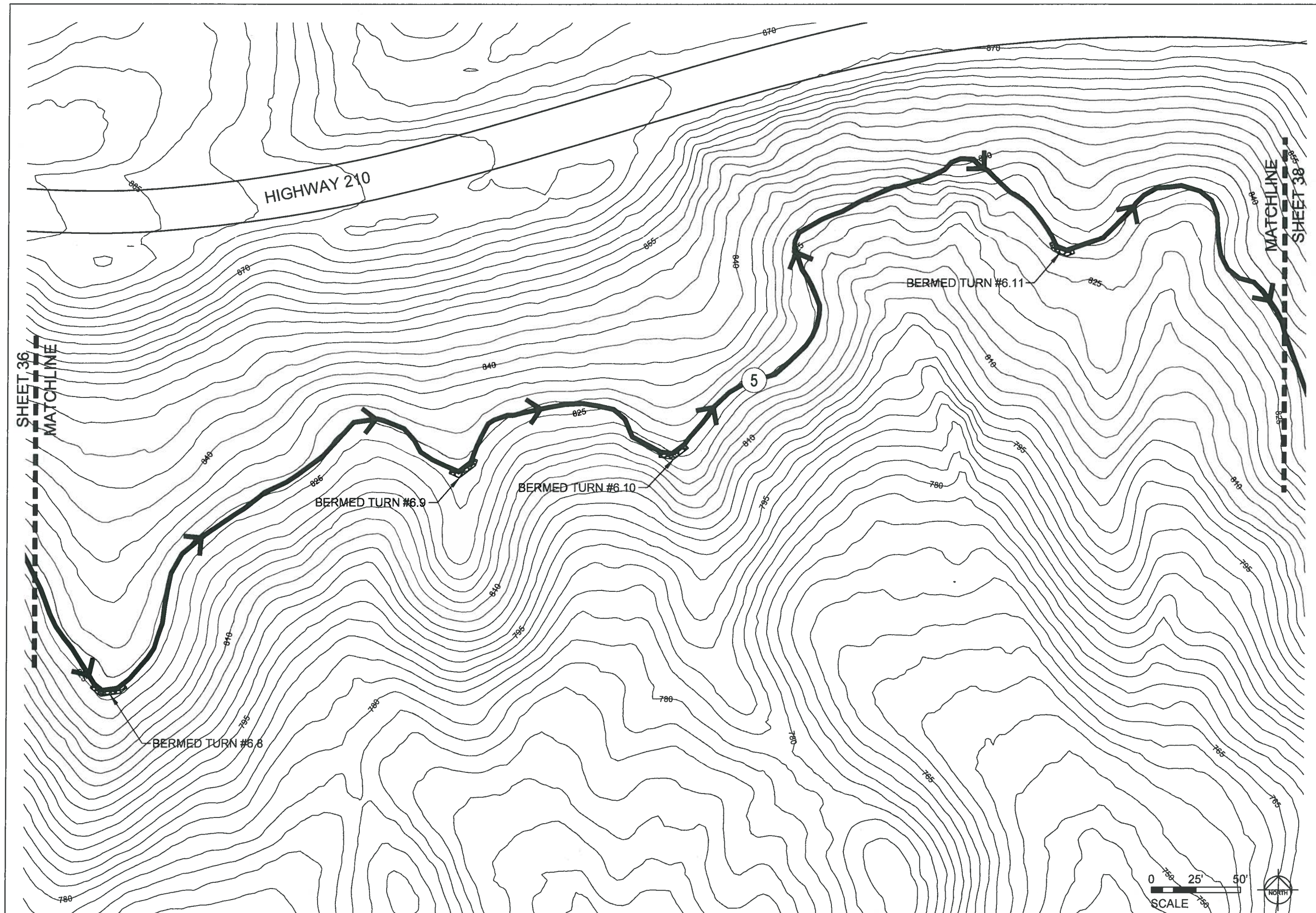
**RIVER SIDE
TRAIL**

36

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 36 OF 43



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**DULUTH
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MISSION CREEK
PHASE 1**
DULUTH, MINNESOTA

PROJECT NO.: 12-039
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LANDSCAPE ARCHITECT REG. NO.

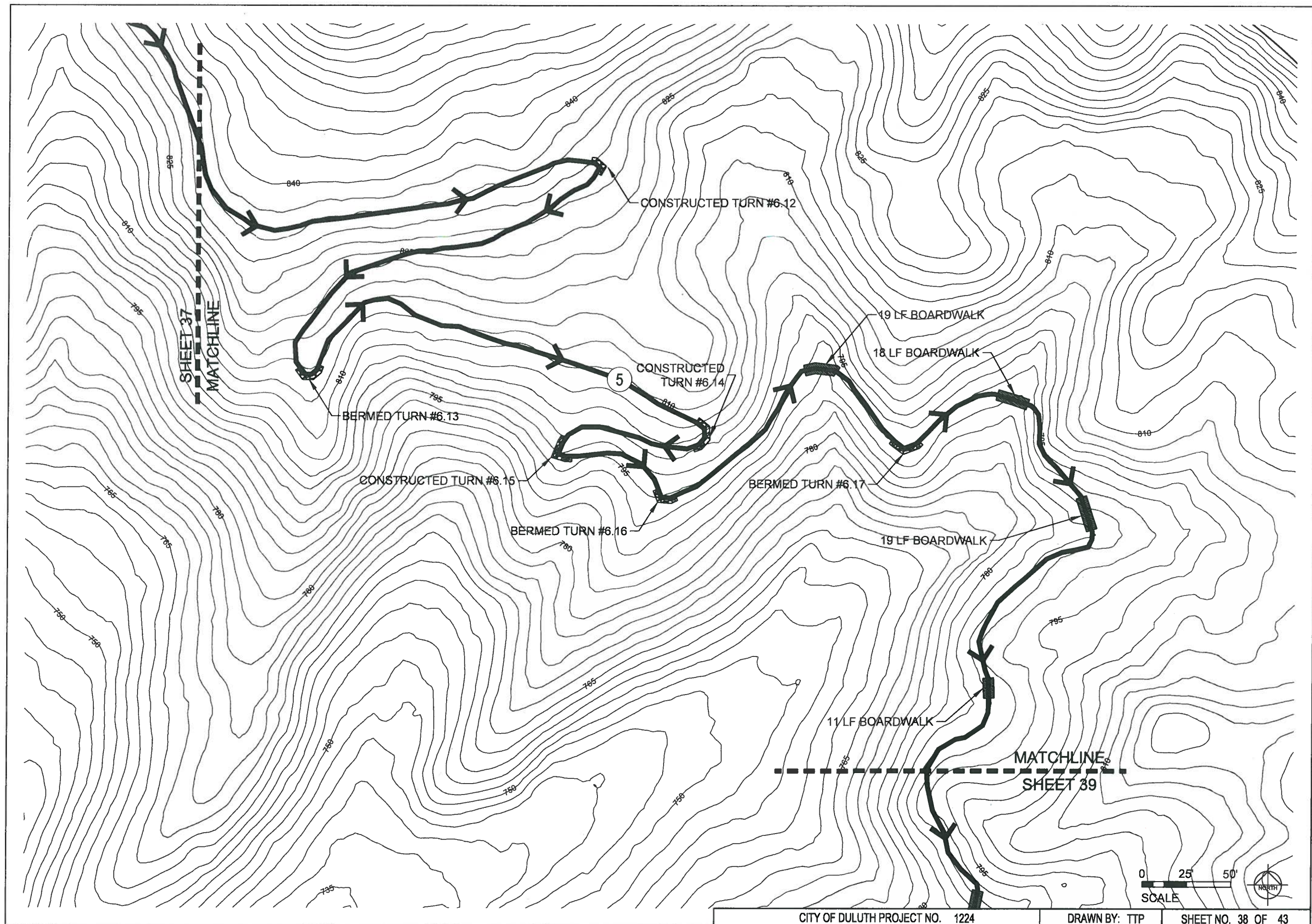
**RIVER SIDE
TRAIL**

37

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 37 OF 43



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**DULUTH
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DULUTH, MINNESOTA

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LANDSCAPE ARCHITECT REG. NO.

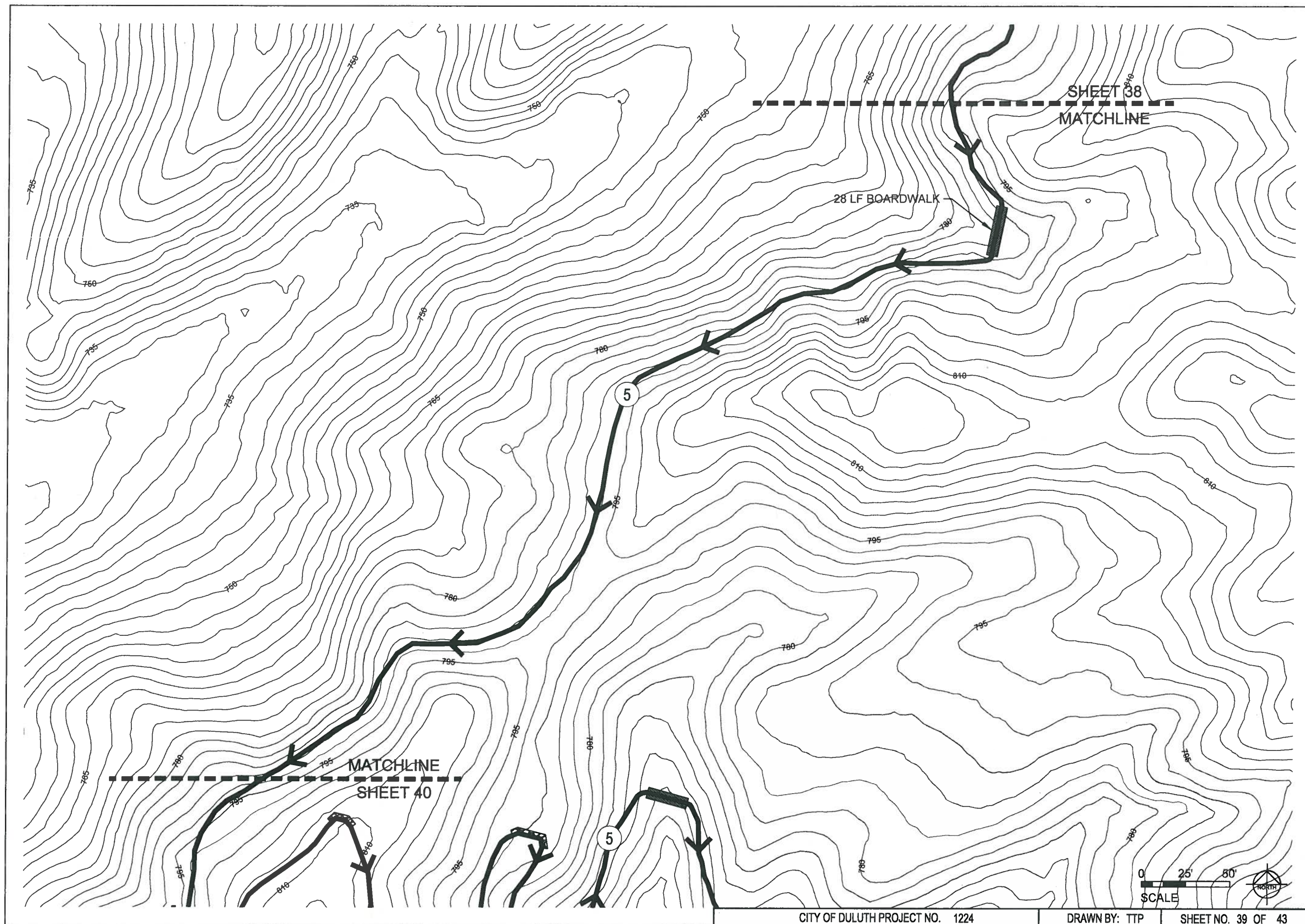
**RIVER SIDE
TRAIL**

38

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 38 OF 43



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LANDSCAPE ARCHITECT REG. NO.

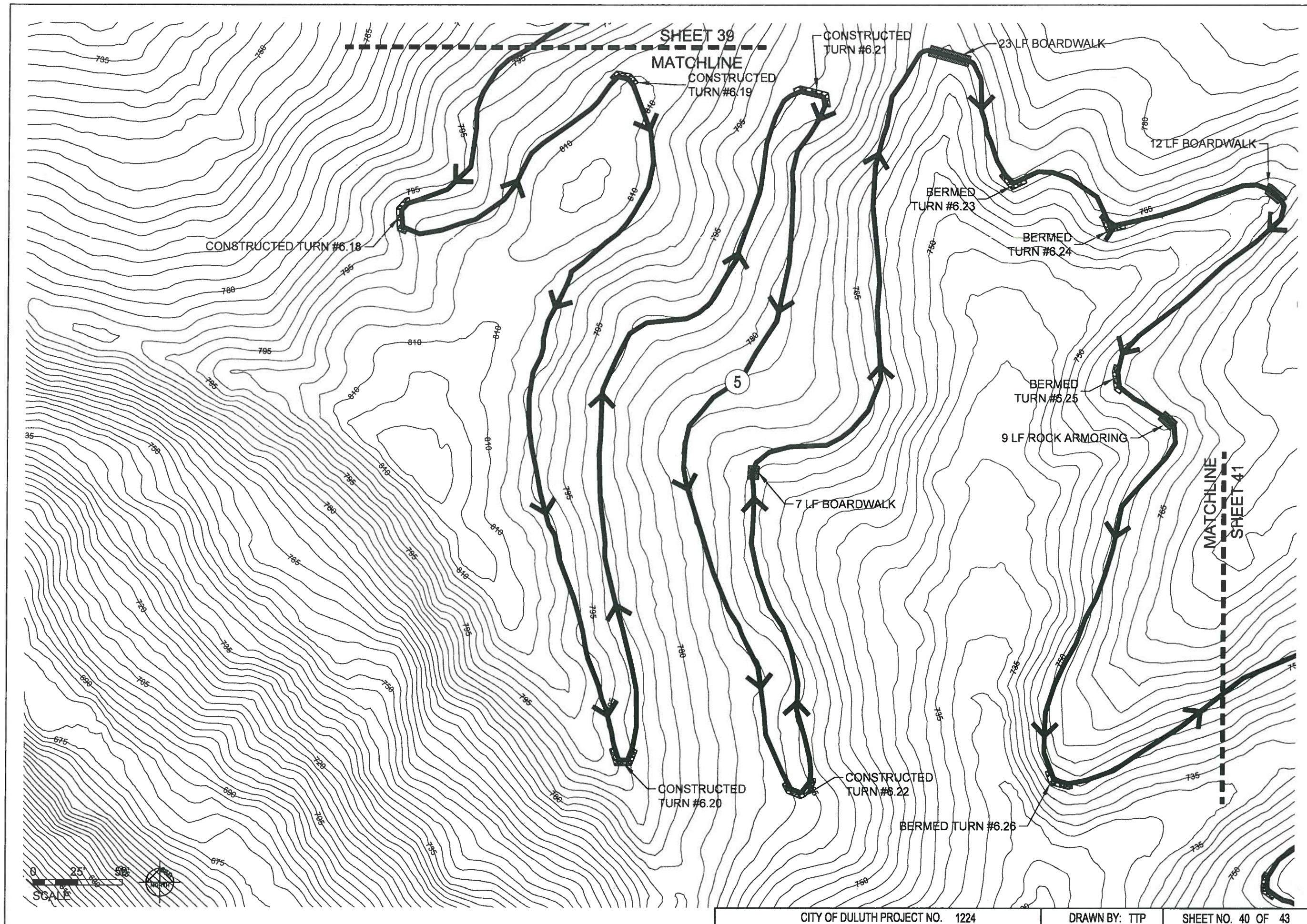
**RIVER SIDE
TRAIL**

39

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 39 OF 43



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**DULUTH
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DULUTH, MINNESOTA

PROJECT NO.: 12-039
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JAMES M. SROBERG
LANDSCAPE ARCHITECT
45577
REG. NO.

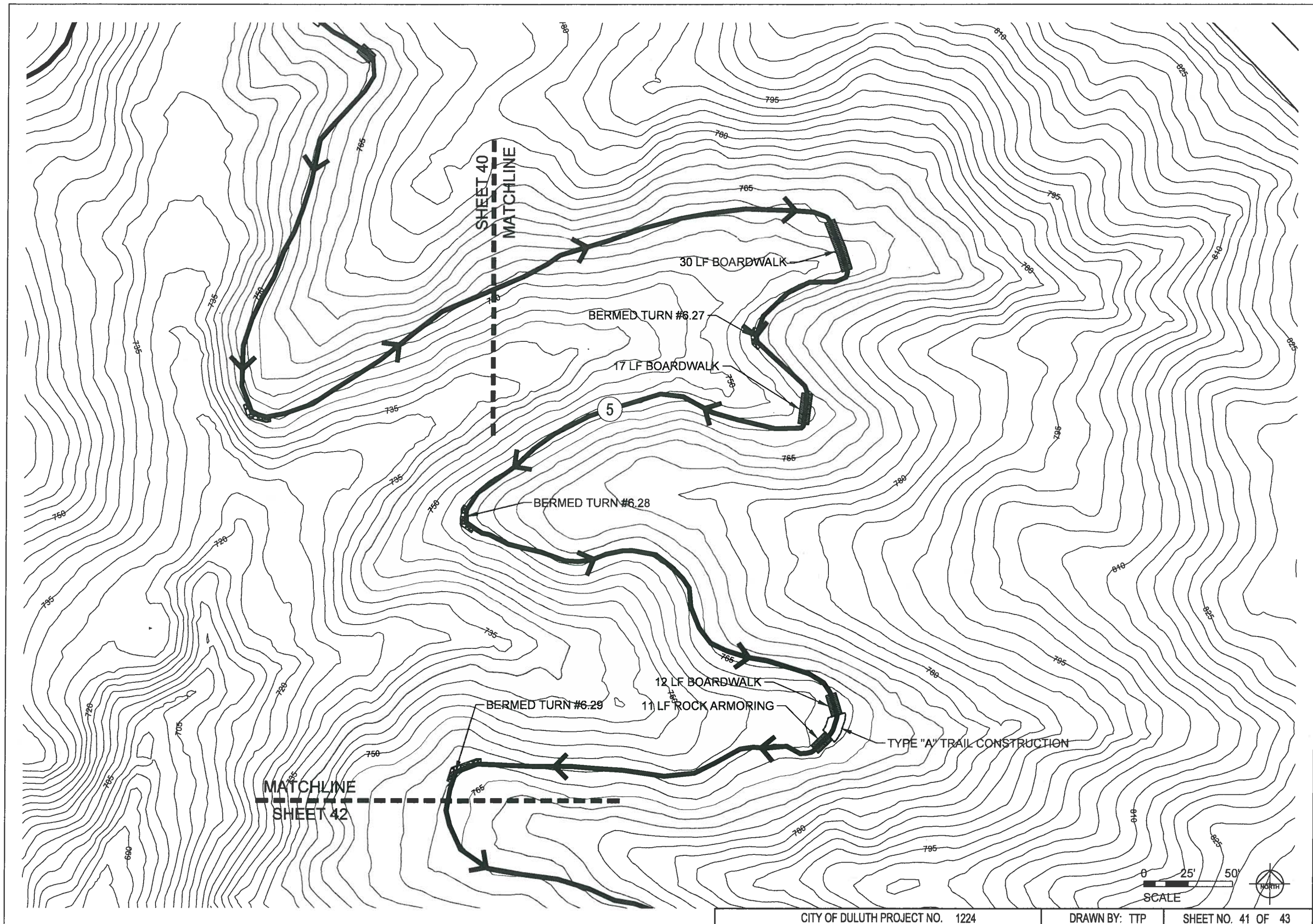
**RIVER SIDE
TRAIL**

40

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 40 OF 43



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DULUTH TRAVERSE TRAIL MISSION CREEK PHASE 1 DULUTH, MINNESOTA

PROJECT NO.: 12-039
DATE: MAY-7-2013
DRAWN BY: TTP
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LANDSCAPE ARCHITECT UNDER THE LAWS
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JAMES M. SROBERG 45577
LANDSCAPE ARCHITECT (REG. NO.)

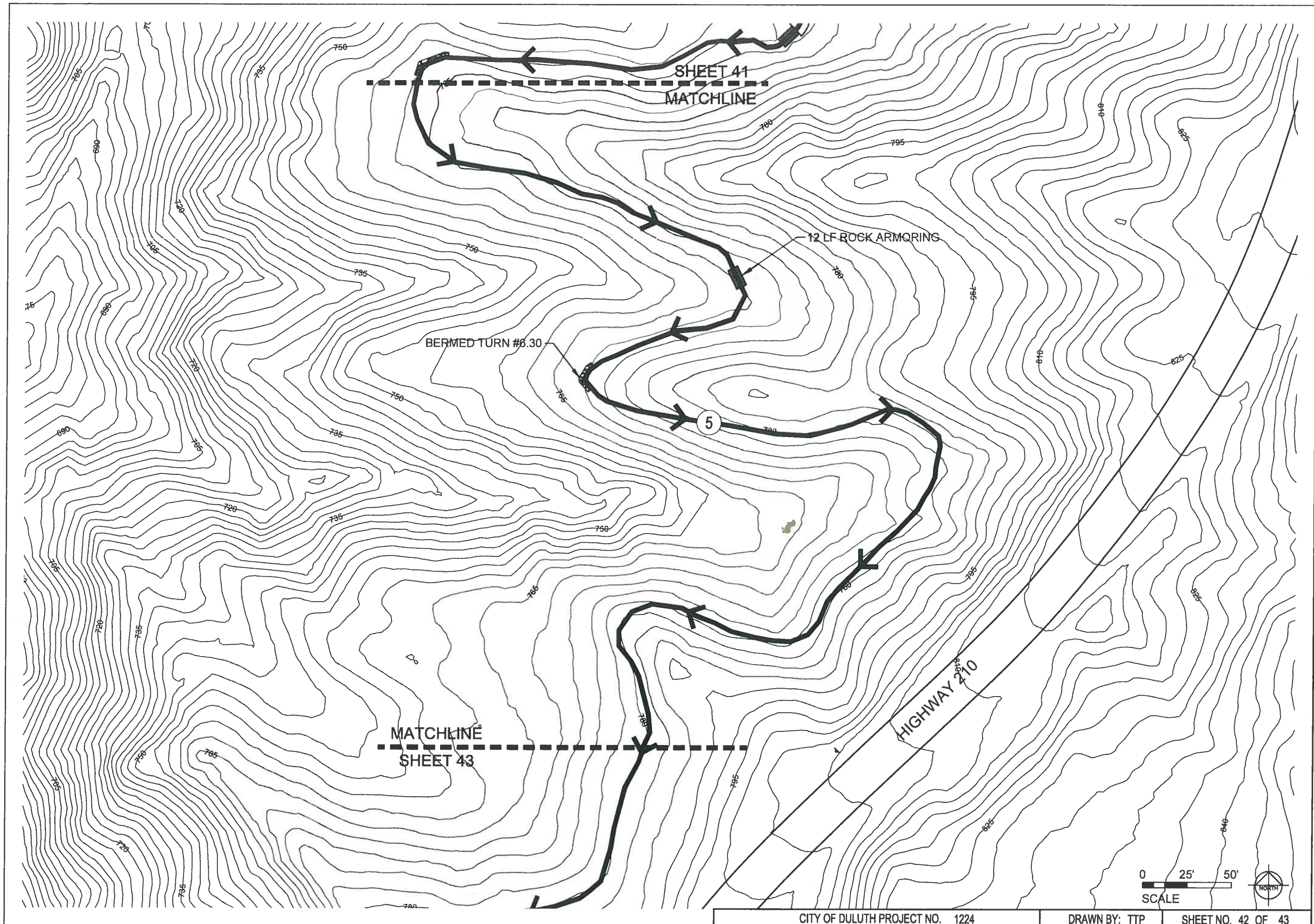
RIVER SIDE TRAIL

41

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 41 OF 43



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**DULUTH
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MISSION CREEK
PHASE 1**
DULUTH, MINNESOTA

PROJECT NO.: 12-039
DATE: MAY-7-2013
DRAWN BY: TTP
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JAMES M. SHOBERG 45577
LANDSCAPE ARCHITECT REG. NO.

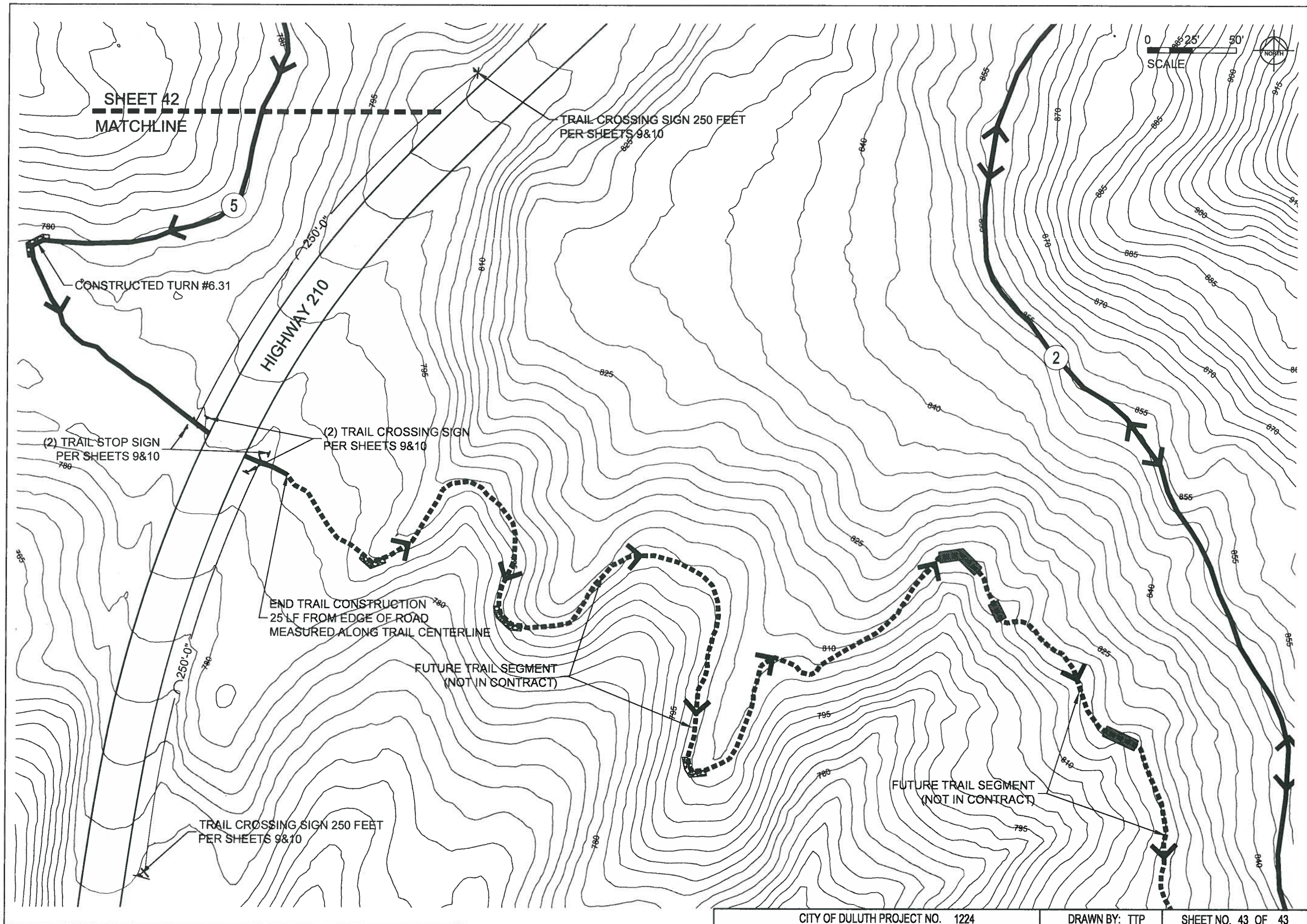
**RIVER SIDE
TRAIL**

42

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 42 OF 43



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**DULUTH
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PHASE 1**
DULUTH, MINNESOTA

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JAMES M. SHROBERG 45577
LANDSCAPE ARCHITECT REG. NO.

**RIVER SIDE
TRAIL**

43

CITY OF DULUTH PROJECT NO. 1224

DRAWN BY: TTP

SHEET NO. 43 OF 43